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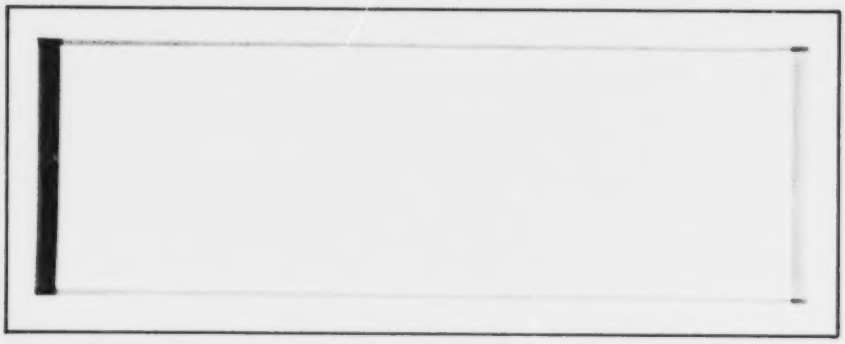

WORKING PAPER

Marketing and Economics Branch

Direction générale de la commercialisation et de l'économie

Working papers are (1) interim reports completed by the staff of the Marketing & Economics Branch, and (2) research reports completed under contract. The former reports have received limited review, and are circulated for discussion and comment. Views expressed in these papers are those of the author(s) and do not necessarily represent those of Agriculture Canada.

TRADE BARRIERS AND THE WESTERN CANADIAN LIVESTOCK INDUSTRY

(Working Paper 11/86)

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*The study was completed under contract. The views expressed in this report are those of the authors and do not necessarily represent the position of Agriculture Canada.

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I. Rationale for Terms of Reference

The study is to provide an analysis of the economic implications of free trade in livestock and red meats for Western Canada. The conditions which are necessary for workable free trade in livestock commodities go far beyond the removal of tariffs. Non-tariff barriers and a myriad of institutions and subsidies on each side of the border present far greater barriers to the unfettered movement of livestock and meat than do formal tariffs. Presumably, if there are to be the gains expected from the movement to free trade, then the government does not mean by "free trade" simply the removal of tariffs. Hence this study has three major functions:

(a) to identify the conditions necessary for free trade in livestock and meat. This is primarily the identification of barriers to trade and the cataloguing of their effects on the flows of commodities.

(b) to quantify the effects of a movement to free trade for the Western Canadian livestock industry.

(c) to priorise the areas which must be addressed in free-trade negotiations.

The report will cover both beef cattle and hogs and their major meat product derivatives. Four major sources of trade barriers will be examined in detail. These are tariffs, non-tariff barriers, regulations and domestic subsidies. Tariffs are the most obvious barriers to trade. Although not large, they still restrict the movement of commodities. Their removal will have price effects which can be quantified. Non-tariff barriers are those regulatory barriers which impede the cross-border movement of commodities. Non-tariff barriers exist in both

countries. They often have dual purposes such as the assurance of public health or the protection of consumers. Often the regulations are not defined precisely enough to prevent bureaucratic interpretation which can ease or slow the movement of commodity as desired. Such barriers will be identified and their subtleties explained.

The agricultural sector is heavily regulated. The regulatory system has evolved within the context of separate economies which do not practice free trade. Hence regulations have evolved with little regard to harmonization with those of other nations. Any movement to free trade, however, will require that many regulations which were of purely domestic concern must be examined within the context of a trading environment. In the livestock industry there are a large number of such regulations which involve the protection of consumers. These involve grading standards, cutting standards, packaging and carcass certification. In a freer trade milieu such domestic regulations become barriers to trade and can be used to regulate the flow of product. Such potential problems will be identified and their effects clarified.

There has been an ongoing commitment in both Canada and the United States, at both the federal and provincial/state level, to support farm incomes. As these social policies have evolved in a multitude of separate legislative jurisdictions, they operate differently in the various jurisdictions. This has two aspects, degree of support and periodicity. If, under an enhanced trade scenario, the agricultural industries in the two countries begin to react with increased divergence to a common set of economic stimuli, then lack of commonality in farm income support policies may become a major factor in distorting trade flows. If in some cases the absolute level of support

works in some consistent way to the advantage of one nation's producers - they would receive a greater degree of support. In the livestock industry, however, the support programs tend to be intermittent and triggered by particular sets of market conditions - threshold prices and the like. Hence, at any given time farmers in one jurisdiction will be receiving aid when others are not. This is complicated by the dual jurisdiction of province/state and federal programs. In the international context, however, the subsidization of the producers in a sub-jurisdiction such as a state or province can lead to charges of "unfair competition" for the entire industry. This is because product from one part of a free trade area - e.g., either Canada or the U.S. - cannot be specifically identified by jurisdiction of origin.

Thus, given the periodicity and the cross-jurisdictional aspects of farm income support policies, it is necessary to identify, explain and if possible quantify, the expected effects of such policies in a trade context. In this study then, the farm income support policies in both countries which affect the livestock industry in Western Canada will be identified, for both federal jurisdictions and for the individual provinces and states.

The output of the report will then provide specifically:

1. A catalogue of trade barriers. A particular effort will be made to identify the programs of the individual U.S. states which are potential markets for Western provinces and potential suppliers of Western provinces.
2. Quantitative estimates of the economic consequences of the removal of barriers to trade for Western Canadian (a) Hog producers, (b) Cow-calf operators, (c) Slaughter cattle operators, (d) Packers.

3. Sensitivity analysis on the results in sub-section 2 with special attention to the particular assumptions in each case.

4. Conclusions and recommendations.

II. Introduction

> "We seek to negotiate the broadest possible package of mutually beneficial reductions in tariff and non-tariff barriers between our two countries."
>
> Statement of the Prime Minister in the House of Commons on Canada/U.S. Trade Negotiations, September 26, 1985

(a) Background

A formal process of negotiation for the reduction of trade barriers between the United States and Canada was initiated in late September 1985. The negotiations are to encompass a wide range of impediments to trade, both tariff and non-tariff. The motivation for seeking a reduction in trade barriers is the underlying theoretical proposition that the free flow of commodities will lead to a specialization in the use of resources which will improve the general level of economic efficiency and hence the welfare of both political entities. This is a long term, long run net adjustment process. It is net in the sense that any reallocation of resources will result in some resources receiving reduced returns in the short run. This results primarily from the observable fact that resources are not perfectly mobile and therefore cannot instantaneously and freely move to take advantage of alternative opportunities which would yield higher returns. In the long run resources are expected to exhibit such mobility and hence gains from trade are expected.

Explicit barriers to trade typically arise from the reaction of political decision makers to the plight of those resource owners (labour, capital, raw materials or human capital) whose returns are reduced (or threatened with reduction) as a result of alterations in resource use patterns across political jurisdictions. In other words

they are a reaction to the very economic forces which lead to the benefits from trade.

Further complications arise, however, when explicit barriers to trade are put in place. As the protected economy is somewhat isolated from the forces of adjustment, policies and institutions can evolve which are not constrained by a free trade environment. In other words new distortions in resource allocation evolve within the economic context of the domestic political jurisdiction alone. Such policies arise in response to states of the economy which are deemed undesirable within the social context of the political entity. In confederations of political entities like the U.S. or Canada, the federal governments are charged with limiting the powers of provincial/state governments to institute policies which restrict the flow of goods and services across internal political jurisdictions. The particular rights and responsibilities of each level of government are laid out in the respective national constitutions and the arrangements for the settlement of disputes are judicially determined. Although the system may be imperfect, the basic tenet is that the federal governments have the power to intercede when policies arise which will hamper the free flow of goods (Kerr and Douglas) (Haack, Hughes and Shapiro). When two entirely separate countries are involved, no such coordination takes place. Social policies are of course the prerogative of separate political entities. Such social policies may take the form of institutions and regulations or subsidies. Both are well recognized means for achieving social policy.

Such institutions or subsidies present no particular problem in a world where explicit trade barriers exist. Explicit trade barriers

have even come under sets of international rules. Both Canada and the U.S. subscribe to the General Agreement on Tariffs and Trade (GATT). When domestic subsidies or institutions contravene the agreed rules of international trade then there are specific procedures which can be followed by the aggrieved trading partner to reduce the injury through countervailing duties. The vast majority of domestic social policies, either institutional or subsidies, are never in conflict with the agreed upon rules of trade.

A problem arises, however, when removal of explicit barriers to trade are contemplated. As the institutions and subsidies have evolved in isolation, upon the removal of the explicit barriers to trade, the resource allocation distortions created by domestic policies may then become de facto barriers to trade. They were not, however, intended to be barriers either by intent or design.

The existence of such unintended barriers does not mean that all social policy must be abandoned to have free trade. What it does mean is that they are likely to be concerns raised in the process of negotiations. At that point each government must make the trade off between the perceived social benefit of the existing domestic policy and the expected benefits from freer trade. The effect of such policies must be addressed during the negotiations and some mechanism for arbitrating future disputes and changes to social policy established. If one does not, then ex post to the signing of the treaty either domestic social policy will be considerably constrained or disputes will arise which will negate the spirit and eventually the benefits from more open trade. It is extremely important for the negotiators to be thoroughly briefed on those domestic policies which are likely to have

the greatest trade impact. These must be identified for both countries. In other words, what are the domestic policies in the U.S. which are most likely to limit the access of Canadian goods moving to the U.S.? Further, what are the Canadian domestic policies which the United States is likely to see as the most inhibiting to its exports and how committed to the retention of such policies is the Canadian government? Only then will there be an effective basis for negotiations. Trade enhancement will take place within such constraints.

The long term benefits expected from free trade will only be manifest when both the primary resource distortions which arise directly from the existence of explicit trade barriers and the indirect resource distortions resulting from domestic policies which have developed in the absence of free trade, have been removed. To the extent that domestic policies are deemed to be in the interest of Canadians and are retained, the long term economic benefits from free trade will be reduced.

The problem is extremely complex due to the increased role which governments have come to play in the regulation of economic activity. The reciprocity treaty of 1854 and subsequent negotiations regarding free trade between Canada and the U.S. (Reisman) took place when government interference in the economy was insignificant compared to the present. In agriculture the process is made exceedingly complex due to the dual jurisdiction over socio-economic policy in the rural sector. There are then the policies of two federal governments, ten provinces and fifty states which must be examined. Although the policies of the provinces and states will, either through federal ruling or agreement between the two levels of government, conform to the arrangements for the within-country movement of goods, they are unlikely to be matched

to the policies of either the federal or those of the individual provincial/state governments in the other country. For example some marketing boards in Canada can restrict interprovincial trade between provinces via federal-provincial agreement through the national marketing agencies. Such restrictions on trade within Canada are likely to cause objections from producers in, say, Wisconsin when they wish to ship products to Manitoba under a free trade agreement.

Hence there are four ways which resource allocations are altered that can lead to barriers to the free movement of commodities when a movement to freer trade is sought: (1) tariffs, (2) non-tariff barriers, (3) domestic institutions and regulations, and (4) domestic subsidies. Presumably all of these are encompassed in "the broadest possible package of mutually beneficial reductions in tariff and non-tariff barriers." If they are not then any gains arising from free trade are likely to be extremely small. Removal of explicit barriers when resource distortions exist as a result of domestic policies which evolved during the period when explicit barriers were in force will only lead to a replacement, for the most part, of the distortions created by the explicit barriers by those resulting from domestic policies.

Non-tariff barriers represent a particularly difficult problem. This is because, unlike tariffs, they are very often dual purpose. In other words they are not created for the sole purpose of restricting trade. There may be some specific examples of single purpose non-tariff barriers such as the Chloramphenical ban enacted by certain pork-producing states in the past year. The majority, however have both a legitimate domestic function and a trade barrier component. For example, the specific form of package labelling is designed to provide a

means to protect U.S. consumers. If that specific form happens to differ from Canadian specifications and this acts as a barrier to Canadian exporters, so much the better - or at least that has been the apparent attitude in the past. Of course this has also been the case for Canadian regulations. In many instances removal of the non-tariff barrier could result from the harmonization of regulations with little being lost for the consumer in terms of protection. In some cases, however, the standards of protection or motivation for the domestic regulation, for example French language labelling in Canada, may be sufficiently important to the importing country that the perceived benefit from retention of the regulation may outweigh the gains from trade expected (Bruce and Kerr). It should always be remembered that the agreement will be reached by negotiation and any set of regulations which one wishes to retain that inadvertently impinges on the movement of goods must be traded for something at the negotiating table. Again the long run benefits to trade will be reduced when such regulations are retained.

Different industries and for that matter individual commodities will have various combinations and degrees of tariffs, non-tariff barriers, domestic institutions and domestic subsidies which interfere with the cross border movement of products. The effects of these barriers are likely to vary geographically. For example certain parts of the country may be net exporters of a certain commodity while other areas may be net importers. In addition as domestic institutions and subsidies are in part within provincial/state legislative jurisdiction the importance of the constraints to trade will vary as provincial/state policies vary.

This study concentrates on beef and pork products produced in the four Western provinces of Canada and the major trading states for these provinces - specifically the states of Arizona, California, Colorado, Idaho, Illinois, Iowa, Oregon, Michigan, Minnesota, Montana, Nebraska, Nevada, North Dakota, South Dakota, Utah, Washington and Wyoming.

Expansion of markets through trade is particularly important for the livestock industry of the prairie region. Since the early 1980's both the beef and pork industries have been subject to declining domestic markets (Kerr, 1985a).

In the post-boom period in Alberta population growth has slowed or may even be slightly negative. This has led to a decrease in the rate of increase in demand for red meat. In addition the rate of growth of income has slowed or may have fallen. As the income elasticities for both pork and beef are positive (Hassan and Johnson) the downturn in income has reduced consumption. In addition, the movement from primarily fiscal to monetary management of the economy (Reeves and Kerr) led to historically high real interest rates. Considerably higher committed payments - especially mortgage payments - for the average household were one major result. This meant a considerable reduction in the discretionary income of households. The effects of reductions in discretionary income upon the total expenditure on food and upon substitutions within the food basket are not well understood but it can be expected that this would have contributed to the absolute decline in per capita red meat consumption (Kerr, 1985b).

Further, there has been a general movement toward increased health, fitness, and trim appearance. Red meat has been identified by the public with both unnecessary cholesterol and unwanted calories.

This change in tastes away from red meats has further reduced per capita consumption. Finally, the relative price of poultry products has declined in relation to pork and beef. As a result consumers have substituted more poultry meat for red meat in their diets. The combination of these forces led to considerable declines in per capita consumption of red meats, especially beef.

The Western pork industry's traditional market in Eastern Canada also declined through the 1970's and early 1980's. There were a large number of factors which contributed to the decline of this market (Gilson, 1982) (Kerr and Ulmer).

The increase in interest rates which accompanied the movement to monetary policy affected cattle and hog producers and processors in a fashion similar to that for most Canadian businesses. The servicing of debt became a major problem for most farms and firms. The problems of credit, along with a declining domestic market and hence prices, lead to an acceleration of the traditional "cost-price squeeze" in the livestock sector in the West.

The result has been increased bankruptcies at the farm level and plant closures and layoffs in the processing sector. For both pork and beef the entire industry in the prairie region exhibits excess capacity. This is at the packer-processor, feedlot, hog finishing, cow-calf and farrowing level. As there are little prospects for increased domestic markets it is not surprising then that there has come to be an increasing emphasis on identifying and developing export markets. Governments at all levels have committed increased resources to expanding export potential (Economic Council of Canada).

The livestock industry makes a significant contribution to the economy of Western Canada. Farm cash receipts from livestock sales account for one quarter of all farm receipts in the West and are valued at approximately $3 billion. The meat processing industry contributes over 20% of all value-added from manufacturing, some $300 to $400 million annually. It provides approximately 11,000 jobs making the industry the largest industrial employer and leading manufacturing industry on the prairies (Kerr and Ulmer). The linkages to the rest of the economy are significant and the multiplier effects are on a par with those of other resource based industries such as the petroleum industry (Kwaczek, Mansell and Kerr, 1984).

While the domestic market has been declining for Western livestock products, the export market particularly in the U.S., has been increasing. The value of net exports (exports minus imports) has increased significantly since 1980. Net exports of live cattle and hogs rose from $94 million in 1980 to $266 million in 1984. Net exports of fresh meat out of Western Canada increased from $10 million to $97 million over the same period. Net exports of meat preparations grew at a slower rate, from $3 million in 1980 to $4 million in 1984. In total this represents almost $367 million dollars in net exports and an increase of 89% since 1980.

Clearly, a great deal of this expanded export growth can be attributed to the increased relative value of the U.S dollar. Still over the period U.S. exports to Western Canada increased 26% while Western exports have increased 200%. This suggests an increasing flow of trade and an improvement in Canadian exports beyond that reflected in the change in the value of the dollar. If only the effect of the dollar

was being reflected in the trade patterns then decreases in U.S. exports would be similar to increases in U.S. imports.

Trade with the eastern portion of the western trading area is relatively mature while new market potential appears available on the West coast, especially California. To put the California market in perspective, in 1979 the total California beef requirement was 3.4 billion pounds. Of this, 1.9 billion pounds had to be secured from out of state. Total Canadian production in 1979 was 2.02 billion pounds. The total production of Alberta, the most likely supplier of California, was 850 million pounds. If even 10% of the California deficit could be supplied by Alberta product, this would represent an increase in production of approximately 25%.

A portion of the California deficit is supplied by Texas, Wyoming, Arizona and Colorado which are close to California. The deficit is so large however, that at times supplies must be drawn from further east than Omaha. Edmonton is closer to major California markets than Omaha and products from Southern Alberta exhibit a transportation cost advantage for points in Northern California, Oregon, Washington and Idaho (Kerr, 1985a).

Although the markets in the U.S. exhibit considerable potential, they can be best characterized as intermittent (Gillis et al.). In other words, periods when there appears to be export potential are quite limited. Cattle markets in both countries are extremely volatile and price advantages can arise and disappear in a matter of days. Although there is some weak seasonality to periods of export advantage, even such seasonal trends cannot be relied upon to plan for export sales (Gillis et al.). Markets must be monitored on a continual basis and firms which

wish to export must act quickly to take advantage of periods of export profitability.

This volatility of export potential has led to trade being conducted on a relatively small scale. In other words the trade is by private treaty between exporters and importers and largely conducted on a truck lot by truck lot basis. This leads to peculiar problems in a trade sense and makes the international movement of goods particularly sensitive to certain types of restrictive trade practices. This may lead to the requirement for special institutions to ensure the free flow of commodity under a "free trade" scenario (Bruce and Kerr).

As the market for Western Canadian products is intermittent this has made it difficult for Canadian suppliers to open and retain market channels. In other words, because trade advantages arise only sporatically it has been difficult for Canadian firms to justify the employment of full time agents in the U.S. As market information channels are imperfect (Gillis et al.), this leads to considerable foregone opportunities. When this is coupled with both the complexity of international trade procedures and risks associated with non-compliance it is not surprising that Canadian firms may not have been as diligent in the pursuit of U.S. markets as it might first appear they should have been.

Export procedures are complicated, especially for higher value-added product such as meat and meat preparations. The movement of live animals for purposes of feeding or slaughter is relatively straightforward. For meat and meat preparations there are a large number of procedures which must be adhered to. Plants must be certified for export and the certification reinstated by periodic reinspection.

Considerable paperwork is involved when product is to be exported. Every truckload is inspected at the border and may be returned for a large number of infractions involving quality control and packaging procedures. Product must be cut to alternate specifications for the U.S. market. As movements of such products are intermittent, plant personnel may be less adept and knowledgeable of the U.S. specifications leading to increased incidents of rejection due to failure to meet the purchaser's requirements. Grading stamps and other Canadian markings may not be permitted on U.S. products. Packaging must be approved before product can move to the U.S. As the approval process is not instantaneous, new firms may miss short term market opportunities which arise. Labelling specifications are different in the two countries leading to increased costs of dual packages. The use of different units of measure - imperial in the U.S., metric in Canada - requires alternative packaging in some cases. Given that sales are intermittent, the holding of an inventory of special materials may appear to be a unnecessary cost in many cases. In short, one has an export market which is extremely volatile constrained by a system of export rules designed for products whose prices are not volatile.

Perishability adds to the problems of exporters. While rejection of products at point of export is an annoyance for many commodities it does not impose large economic costs. Bureaucratic delay may be annoying and frustrating but it could hardly be considered a reason for discouragement. If meat products are rejected at border inspection they will be delayed at border and if totally rejected returned to the exporter. This can lead to deterioration of quality and a subsequent reduction in price. Given that margins in the meat industry are very

small, such risks may be sufficient to deter aggressive foreign marketing.

In addition, such border delays or rejections will likely have other effects. Delays may lead to reductions in quality and subsequent doubt about the reliability of the exporter in the mind of the consignee. This is likely to affect future sales orders. Rejection of product at the border can affect the consignee's ability to fulfill orders and hence raise concerns over security of supply. Again this can affect the ability of the Canadian exporter to secure future sales. Rejection of product at the border may also lead to reduction in returns to processors even if there is no deterioration in product quality. As the product was destined for export it will have been cut to U.S. specifications. To the extent that the specifications differ, if the rejected product has to be sold in the Canadian market it will suffer a discount. These losses must be added to the cost of trucking to the border and back plus the costs of loading and unloading to vehicles. If packaged product, rejection at the border means that the returned product may have to be repackaged to Canadian specifications before it can be released to the domestic market. Of course this may add considerably to costs. Basically, the problems with export procedures have made it difficult for Western Canadian firms, many of which are small, to open and maintain market channels to the U.S.

In a trade sense, however, there is a further problem. The export procedures are often open either to regulatory change or bureaucratic interpretation. An example of the former would be the Chloramphenical ban imposed by a number of U.S. states in 1985. Canadian pork which was in the production process was severely affected.

The increased strictness of interpretation of inspection procedures in times of low profitability in the importing market would be an example of the latter. This adds a further element of risk to the production of product for export to the U.S.

The use of such non-tariff barriers has been identified as the most worrisome restrictions on the movement of product to the U.S. (Kerr and Cullen) (Bruce and Kerr). For there to be "free trade" and for the accrual of the benefits of free trade in livestock to be manifest both the number of such export regulations and the arbitrariness with which they can be applied must be as far as possible reduced.

Such non-tariff barriers have not been eliminated in the EEC (Bruce and Kerr) and still represent major barriers to trade in livestock in the Common market. For example there has been no alignment of health regulations in the EEC and hence "the diversity of regulatory jurisdiction places a serious economic burden on exporting countries which have to comply with all aspects of the maze of sanitary regulations" (Hillman, pp. 152-153). As health regulations are in part the jurisdiction of individual states and provinces, as well as the federal governments, Canada/U.S. trade liberalization have to address the multitudes of existing and potential regulations. Some mechanism needs to be found to deal with this problem. Certainly in the EEC "delays and conflicts in interpretation of regulations arise in the form of non-tariff barriers" (Hillmar, p. 151). It would seem that the major thrust to negotiations should be aimed at the maintenance of open market channels to the U.S. Such a reduction in risk should lead to increased marketing activity by Canadian firms in the U.S. As a first step this report will attempt to identify a number of these barriers and to explain their operation and effect.

Another major area of concern in the process of moving towards less restricted trade in livestock products is the domestic policy institutions, both regulatory and subsidy, which have arisen in the non-free trade context. For beef and hogs, unlike poultry, grains and milk, as the tariffs have been low and quotas for the most part not instigated, the domestic policies have evolved, for the most part, within a trading context. Supply management marketing boards or export market regulation have not evolved. As a result there are likely less problems for hogs and beef with either institutions or subsidies. The only exception in Western Canada is British Columbia which traditionally has been a deficit area within Canada. Hence it was an importer primarily from Alberta. As B.C. did not have significant exports, its policies evolved with greater degrees of support than the other Western provinces.

The cattle industry does not have marketing agencies with powers to restrict trade. The hog boards in some provinces have powers to act as the only seller of the commodity although they do not have the power of supply management. This single seller role needs to be evaluated in the context of free trade - both as to the meaning for any live hog imports from the U.S. and individual Canadian farmers who wish to export.

In addition, there may be some domestic institutions which are not specific to hogs or beef which can affect the free flow of these commodities. Trucking regulations, for example, can and do restrict the free movement of commodity across jurisdictions. They may be of concern in the context of a free trade agreement.

Subsidies in the livestock industry in Western Canada are not extensive. They have arisen in the prairie region in the last few years as provincial governments attempt to slow the process of rationalization which is taking place in the wake of the market downturn which has arisen over the last five to six years. Falling demand has led to falling prices and increased bankruptcies. The resolution of the Crowsnest Pass rate problem in a manner which was not satisfactory to some livestock producers and provincial governments has expanded the rationale for provincial budgetary support of livestock producers. Of course such expenditures tend to be counter-productive as, in conditions of stable or declining markets, support for producers in one province tends to worsen the position of farmers in other jurisdictions. As a result the phenomenon of competing provincial treasuries has arisen. Initially such subsidies were initiated without complaint from the U.S. The strong U.S. dollar and subsequent Canadian increases in exports, however, led to suit being brought at the U.S. International Trade Commission for countervail duties on hogs in 1985. These duties were subsequently granted. Clearly, although the particular issue has not been fully resolved, the problem of agricultural subsidies cannot be excluded from the trade agenda. A free trade agreement is likely to require the restriction of such domestic subsidies. The constitutionality of such restrictions for state or provincial governments is not clear either in the U.S. or Canada.

Canadian subsidies, both at the federal and provincial level, tend to be more direct than those in the U.S. State level programs tend to be poorly understood in Canada and this may lead to some disadvantages during the process of negotiations. Certainly domestic

support policies are not precluded in trade agreements but there are likely to be agreed-upon limits if any workable free trade is to result. The relative magnitudes of support need to be identified as a prelude to determining what can or should be negotiated in terms of domestic subsidy programs.

(b) Organization of the Study

The study is basically divided into three parts. Sections III, IV, V and VI provide an inventory of the existing (or those which can be anticipated) barriers to the free movement of agricultural commodities. Particular attention is paid to non-tariff barriers and U.S. subsidy programs for livestock. It is of immense importance that some mechanism be included in any trade agreement to facilitate the disputes which will inevitably arise as a result of non-tariff barriers (or the perception of non-tariff barriers). Although no complete catalogue of non-tariff barriers can ever be provided as the extent of such barriers is only limited by the inventiveness of those who wish to slow or curtail the international movement of products, a sufficiently comprehensive list is provided so that the types of barriers one can expect can be identified. This should provide sufficient input so that an effective and efficient mechanism to resolve disputes can be devised.

The cataloguing of U.S. subsidies is important for "level playing field" discussions. A negotiated trade agreement does not mean that all farm income support programs must be phased out. It does mean however that there must be some harmonization of programs so that the policies are approximately equal in effect for tradeable commodities. As a first step there must be complete information by Canadian negotiators of U.S. programs, their operation and the likely magnitudes of their support.

Section IV (b) provides information on both federal and state level programs in the seventeen states identified as contact trading states for the Western Canadian region. A common criteria is developed for quantifying the magnitudes of the subsidies so that they can be compared across states. The study is careful to also provide the raw data on subsidy programs so that they can be easily converted to any subsequent criteria which might be desired or agreed upon at the negotiating table.

Further, a discussion is provided regarding the problems which arise when attempting to quantify the effects of some U.S. subsidy programs. As a comprehensive and formal analysis of the quantitative effects of such programs was beyond what was possible with the resources available for this study, only an outline of these programs is provided.

The second part of the study is contained in Section VII. Here some quantitative estimates of the effects of the reduction of trade barriers which is likely to arise from a free trade agreement are undertaken. It is well known that a complete evaluation of the adjustments arising from trade liberalization can only be undertaken within the context of general equilibrium analysis. Unfortunately it is also well understood that it is virtually impossible to obtain any meaningful quantitative results from the general equilibrium approach. Still considerable insights can be obtained from the use of the comparative statics approach. Of course it must always be remembered that when one uses this methodology it is impossible to capture the second round effects in resource use which are so germane to studies of trade liberalization.

This report uses the standard comparative statics approach which can be illustrated graphically by Figures II (b) 1 and II (b) 2. Of

FIGURE II (b) 1

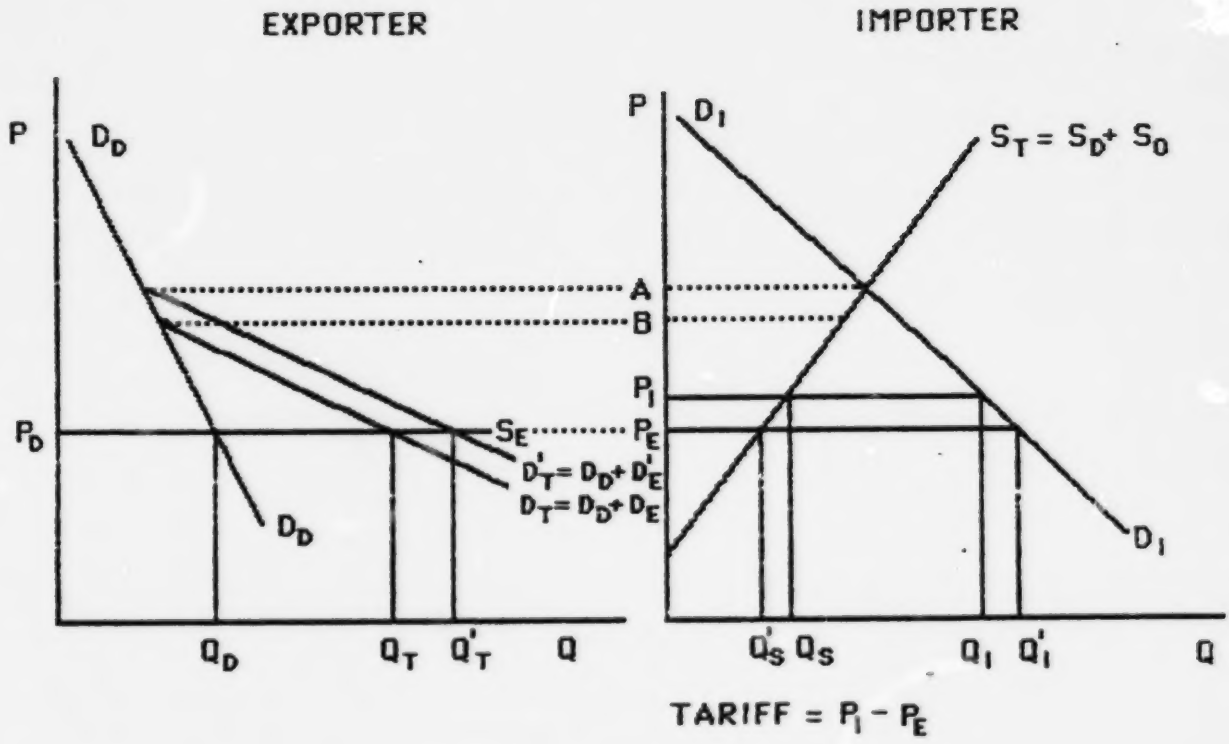
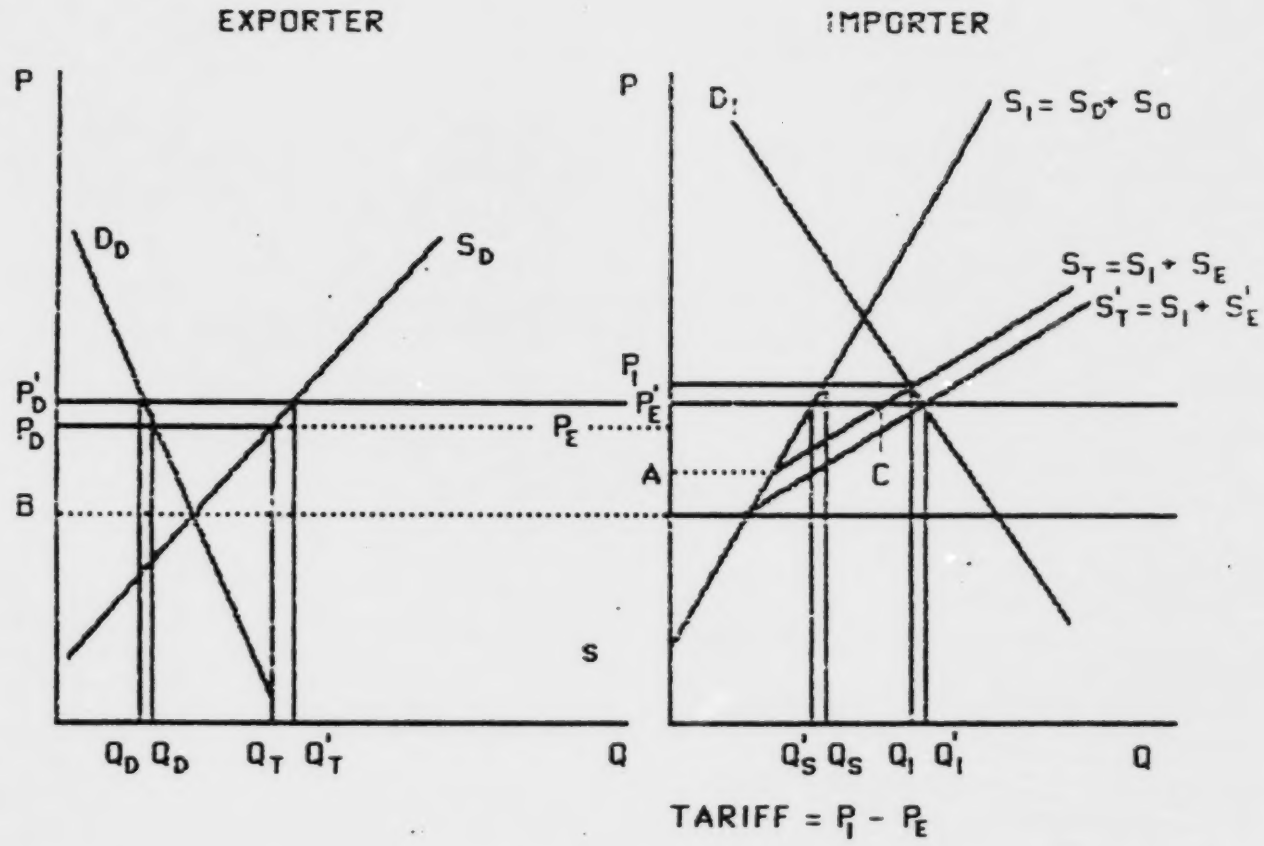

EXPORTER
IMPORTER
P
D_D
P_D
S_E
$D'_T = D_D + D'_E$
$D_T = D_D + D_E$
D_D
Q_D
Q_T
Q'_T
Q
P
D_I
$S_T = S_D + S_O$
A
B
P_I
P_E
D_I
Q'_S Q_S
Q_I
Q'_I
Q
TARIFF = $P_I - P_E$

FIGURE II (b) 2


EXPORTER
IMPORTER
P
P
D_D
S_D
D_I
$S_I = S_D + S_O$
$S_T = S_I + S_E$
$S'_T = S_I + S'_E$
P'_D
P_D
P_E
P_I
P'_E
A
B
C
S
Q_D Q_D Q_T Q'_T
Q
Q'_S Q_S Q_I Q'_I
Q
TARIFF = $P_I - P_E$

course the magnitudes of the results obtained from comparative statics depend upon the assumptions one makes about the elasticities of supply and demand. Figure II (b) 1 illustrates the case where the supply curve in the exporting area, S_E, is perfectly elastic. The case of the importing sector is illustrated by the right hand panel of Figure II (b) 1. The demand for the product in the importing area is illustrated by D_I. The supply curve for the product in the importing area which is not supplied by the exporting area in question is S_T. This curve is composed of two portions, the supply produced domestically, S_D and that portion of total supply which is provided by other exporting areas, S_O. In the absence of supplies available from the exporting area in question the price in the importing country would be A. However, the exporting area can supply product into the importing area at a price below A, P_E in this case. For sake of illustration we are assuming that transportation and other importing and exporting costs are zero. If for example supplies of imports were available at P_I the quantity imported from the exporting country in question would be the difference between that which would be supplied by domestic producers and other foreigners, Q_S, and the quantity demanded by the importing nation at price P_I, quantity Q_I. Hence at P_I the quantity imported from the exporting area in question would be $Q_I - Q_S$.

If the importing price were to fall from P_I to say P_E the quantity supplied by domestic producers and othe rexporters would be reduced from Q_S to Q_S'. At the same time consumers would react to lower prices by increasing consumption from Q_I to Q_I'. Hence imports from the exporting area in question increase from $Q_I - Q_S$ to $Q_I' - Q_S'$. The relationship between the change in importing price and the quantities

imported are commonly denoted price flexibility estimated. These have been estimated (in a number of studies) for most meat products in the U.S. (Fierbairn and Rousseau) (Houck) (Ward). Of course the magnitude of the price flexibility estimates will vary with the elasticities of S_T and D_I. In this study a range of values for price flexibility estimates (from previous U.S. studies) was used .

The effect of a tariff in the perfectly elastic export supply function case can now be illustrated. Assume that the supply of product is perfectly elastic at P_D in the exporting country. As transport and other charges are assumed zero, P_D becomes the price at which imports become available to the importing country, P_E. If one wishes to protect domestic industry in the importing country a simple (fixed dollar value) tariff can be imposed. In the case illustrated here this is the difference between P_E and P_I, e.g., P_E + TARIFF = P_I. Hence P_I becomes the effective price with which domestic producers or other foreigners must compete. They will increase production from Q_S' to Q_S. Consumers react to the higher price by decreasing consumption from Q_I' to Q_I. Imports from the exporting area in question equal $Q_I - Q_S$.

The effect on the importing area can now be illustrated. Domestic demand in the exporting area is D_D. The supply curve is perfectly elastic at P_D and hence is S_E. Domestic consumption at P_D equals Q_D. To this must be added the demand generated by the importing area. The demand for imports is the difference between D_I and S_T in the importing area at the effective import price. With the tariff in place this is P_I for price P_D. Thus the export demand is $Q_T - Q_D$ and exactly equal to $Q_I - Q_S$. As price rises, the difference between D_I and S_T is reduced and hence the export demand is also reduced. This is

illustrated by curve D_T in the exporting area where D_T equals the sum of domestic demand D_D and the export demand D_E. Of course, with the tariff in place all imports would cease at price level B (given that $D_I - D_S$ equals 0 at level A) when A - B equals $P_I - P_E$ or the amcunt of the tariff. Hence if prices rose to B there would be no export demand and D_D would constitute the total demand for the, up to that point, exporting area.

The effect of removal of the tariff can now be considered. Clearly in the importing area the removal of the tariff is equivalent to reducing the import price from P_I to P_E. As a result imports increase from $Q_I - Q_S$ to $Q_I' - Q_S'$ or $(Q_S - Q_S') + (Q_I' - Q_I)$. For the exporting area the removal of the tariff is equivalent to a parallel shift in the D_T curve to D_T'. In other words at P_D the change in export demand $Q_T' - Q_T$ exactly equals the additional imports $(Q_S - Q_S') + (Q_I' - Q_I)$. Of course now zero export demand will be manifest at price level A where $D_I - S_T = 0$. Hence the effect on the exporting area from the removal of the tariff can be estimated directly by using the importing area's price flexibility estimates.

The case where the exporting area's supply curve has a positive elasticity is more complex but can be dealt with in Figure II (b) 2. Domestic demand in the exporting area is denoted by curve D_D. The supply of product available in the exporting area is denoted S_D. At any price above level B (where domestic demand would exactly equal domestic supply there will be product available for export, or an export supply. For example at price P_D' domestic consumers wish to consume only Q_D' while domestic producers wish to supply Q_T'. As a result $Q_T' - Q_D'$ is available for export. Clearly the amount available for export supply increases as price increases above B.

The right hand panel in Figure II (b) 2 illustrates the case of the importing country. The curve D_I is the demand in the importing area. The curve S_I denotes the supply of product in the importing area which does not arise from the exporting area in question. It is made up of two parts, supplies produced domestically in the importing area, S_D, plus supplies originating with exporters which are not the exporter in question, S_O. To this must be added the supplies available from the exporter in question. With no tariff, quantities become available at price B and supplies increase as price increases. Thus at P_E' supplies available for import are $Q_I' - Q_S'$. Of course this is exactly equal to the export supply at P_D, $Q_T - Q_D$. Total supply in the importing area is S_T' which equals $S_I + S_E'$ at any price above B. Supply equals demand in the importing area at P_E' thus establishing the price in both areas.

The imposition of a tariff equal to $P_I - P_E$ is then equivalent to a parallel shift in the S_T' curve to S_T. In other words there are only supplies available for import at level A where distance A - B exactly equals the value of the tariff $P_I - P_E$. Although supplies are available at B in the exporting area they are only supplied into the importing area at a price equal to A, B + TARIFF = A. Hence at price P_E' only amount C is supplied and there is excess demand. Supply equals demand at price P_I. Imports equal $Q_I - Q_S$. This exactly equals the export supply available at P_D in the exporting country, $Q_T - Q_D$. The distance $P_I - P_E$ equals the value of the tariff and the price is effectively set in the exporting country at P_D.

The removal of the tariff will, of course, have the exact opposite effect. Hence the removal of the tariff will lead to an increase in imports from $Q_I - Q_S$ to $Q_I' - Q_S'$ or $(Q_S - Q_S') + (Q_I' - Q_I)$

which is exactly equal to $(Q_D - Q_D') + (Q_T' - Q_T)$. The removal of the tariff leads to an increase in the price in the exporting country of P_D to P_D'. Note, however this is less than the value of the tariff by the amount $P_I - P_E'$. Hence it is obvious that the reduction of the tariff leads in part to increased exports and in part increased prices. The degree to which the reduction of the tariff will be taken up by increased price rather than increased exports will depend on the elasticity of export supply. As one moves from perfectly elastic export supply to inelastic export supply a greater portion will be taken up by increased prices and a smaller portion by increased exports. Clearly then the effect in exports depends in part on the price flexibility of imports and the export supply elasticity. Quantification requires a simultaneous solution.

In terms of the methodology of this report a range of estimates is provided. These estimates are based on alternative estimates of import price flexibility combined with alternate export elasticity assumptions. The estimates on the change in quantities of exports should fall within the range of values which could be expected from the removal of alternative identifiable and quantifiable barriers to trade.

In addition an analysis of the expected effects of relaxation of health import restrictions on feeder cattle is provided in this section. The analysis focuses on the likely effects on directional trading patterns for feeder cattle. Section VIII provides the conclusions of the study.

III. Tariffs

Tariffs in the beef-cattle industry are virtually the same for both Canada and the U.S. In both countries, the tariff is lowest for cattle and increases with the degree of value-added. Thus both countries are attempting to capture for themselves the value-added from further processing the beef.

The Canadian tariff structure is fairly simple and is as follows: live cattle 1¢/lb.; fresh meat 2¢/lb.; and canned beef 15%. The duties paid on Canadian beef moving to the U.S. have a slightly more comprehensive structure. The duties are: live cattle 1¢/lb., fresh-frozen meat 2¢/lb.; beef sausage .6¢/lb.; prepared and preserved beef (smoked, canned, etc.), (a) valued under 30¢/lb. - 1¢/lb., (b) valued over 30¢/lb. - 10%, (c) special cuts - 4%; if packaged in airtight containers, (a) sausages - 7.5%, (b) canned beef - 7.5%, (c) otherwise - 3%. Thus although the U.S. tariff structure is slightly more comprehensive than the Canadian, the relative duties for both countries are approximately equal.

As for the pork-hog industry, the situation at the present time indicates some conflict with regard to unfair competition. In April 1985 a countervail tariff on live Canadian hogs of 4.3¢/lb., and 5.5¢/lb. on fresh pork was temporarily imposed (Gilson, 1985). Upon further investigation the countervailing duty on pork was revoked and the duty on live hogs reduced to 3.21¢/lb. (Freshwater). The U.S. claims that Canadian farmers have an unfair advantage as a result of our government subsidy programs, and that the U.S. farmers are being hurt by Canada 'dumping' surplus extra hogs on their market. However, the subsidy programs in Canada are in part at the provincial level and some

provinces have no form of subsidy available to hog farmers. This presents a problem as all hogs from Canada are subject to the countervail - even those produced without the advantage of government help.

The Canadian subsidy programs are highly visible and easily calculated. The total amount of the subsidy is the major factor in determining the amount of the countervail. The U.S. calculates the countervail by taking the amount of the total subsidy and dividing it by the total number of hogs marketed by Canada, both domestic and export.

Subsidization is not unique to Canada. The U.S. does subsidize its hog farmers, however they use indirect subsidies which are difficult to prove and even harder to calculate. This provides an excellent example of the problems which can arise from multiple jurisdictions in a trade context. Canada will have to address this aspect of its domestic policy-making before negotiating free trade as it is unlikely the U.S. will be willing to give up the power to countervail. As long as our domestic subsidies are highly visible and easily calculated, any attempt at a free trade deal will be inherently difficult.

Before the countervail was enacted, the U.S. had slightly higher tariffs than did Canada. Again both are very similar, however the U.S. structure is more comprehensive than the Canadian structure. The U.S. tariffs (previous to the additional countervail) were as follows: fresh pork 1¢/lb.; pork sausages .6¢/lb.; cured pork, hams, etc. 1¢/lb. (unless packaged in an airtight container). Live hogs moved freely.

In Canada, the duties are: 15% for hams and canned pork; 1¢/lb. for preserved products (bacon, ham shoulder, etc.); and .6¢/lb. for pork sausage. Live animals and fresh pork move into Canada duty free.

As was the case with beef, as the value-added increases, the tariff increases commensurately. Again, each country wishes to capture this value-added for itself as this would mean increased jobs and revenue for each country respectively. Therefore the tariff is lower for raw product in an attempt to promote the importation of these products and discourage the importation of more processed product.

IV. Non-Tariff Barriers to Trade

Tariffs are not the only mechanism available for restricting trade. Some of the alternatives - such as quotas - are obviously intended to limit trade while others are more subtle. For quotas, however, it is their obvious nature that limits their usefulness. If quotas are imposed, the exporting country can usually justify some retaliation in accordance to the demands of its domestic industry (National Commission on Agricultural Trade and Export Policy). The country imposing the quota may also face accusations of contravening the rules and regulations of GATT. It may ultimately have to face the appropriate penalties and often governments would prefer not to invite such consequences.

Other methods of restricting trade are less obvious. Often, the justification for these is difficult to refute, making changes almost impossible. For example, health regulations have evolved in order to protect the Canadian consumer. As an externality associated with these regulations, the import of certain products may be artificially restricted. If it so desires, the government can ignore such side issues in pursuit of the primary intent of the regulations. An effective trade barrier may result.

Not all of the more subtle barriers are necessarily intentional. Over the past 30 years or so, individual governments have created a multitude of regulations designed for their countries' specific problems and economic conditions. There has been little, if any, international coordination of such regulations. These may unintentionally restrict trade by making it difficult for exporters to meet the conditions required by the importing country. It may be that compliance with the

rules will put them in contravention of their domestic regulations. Compliance may just be too expensive if, say, a large piece of machinery must be purchased to service an export market which is a very small part of their total market. In any case, whether intentional or not, lack of cross national harmonization of regulations can constitute a barrier to trade.

In this section, three main groupings of non-tariff barriers are discussed: formal, disguised and structural.

(a) Formal

Formal barriers to trade are those with the publicly stated goal of reducing trade. The most obvious example is quotas. Currently neither the United States nor Canada imposes any quota limitations on the movement of hogs, pork or cattle across the border. The Canadian quota on beef products in 1985 was 146 million pounds but imports from all countries in expected to reach from 165 to 175 million pounds by year end (Cattlemen, November 1985). However, the limit is enforced at ministerial discretion and in 1984, it was not enforced at all.

The quota on total beef imports into the United States is generally around 1.2 billion pounds. The United States Department of Agriculture (USDA) establishes the exact level on an annual basis. If it appears that the quota will be the limiting factor on imports, it portions the total volume among the various countries wishing to export to the U.S. market. Historic shares of the market are, in part, the criteria used to establish shares. In such instances, Canada must compete with the other nations for its share of the American quota.

The Department of External Affairs administers the total Canadian volume. It is prorationed among Canadian exporters on the basis of the

total demand for quota and the volumes shipped by the individual exporters in the past. Additional volumes may be granted to an exporter if he has filled his quota and other exporters have not exhausted their volumes. However, once the total quota is met, all exports to the U.S. are stopped by the USDA. In the two years 1982 and 1983, the quota has been filled in the fall and exports have been terminated until the new calendar year. While no notice is given to the individual exporters, cessation of exports may be expected when the requests for information on shipments to date come more frequently.

Given that the overall U.S. quota and the shares allotted to each country vary from year to year, Canadian exporters cannot depend on the American market to provide a constant share of total sales. However, quotas do not appear to have presented a formidable trade barrier in the past. The market tends to move freely and Canada has enjoyed a positive balance of trade in beef in most years. Both the U.S. and Canadian quotas could be retained in negotiation. They have been generally agreed to by both countries and their respective cattle industries in the past.

(b) Disguised

A disguised non-tariff barrier can be an existing regulation that affects trade flows or additions to and changes in existing regulations. The latter is often the result of specific lobbying by producers or other interest groups. Not surprisingly, this is the largest group of non-tariff barriers, as the subsequent examples will illustrate.

Existing regulations can alter trade flows and restrict the movement of product in several ways. The cost of complying with the regulation may be prohibitive. For example, if the animals are not to

be slaughtered shortly after arrival, the exporter that wishes to ship hogs across the border must pay a veterinarian from the Canadian government to inspect both the animals and his production facilities. The veterinarian must issue a certificate stating: (1) there has been no swine plague or hog cholera on the premises in the last sixty days and (2) the animals do not have and have not been exposed to any communicable diseases in that same time frame. The inspection must be done immediately before the hogs are shipped (Office of the Federal Register). The cost of the inspection must be borne by the exporter. Initially, the regulations were designed mainly for breeding animals and, given the value of such animals, the relative cost of the inspection would not be high. However, the rules also apply to feeder pigs and the cost and time involved can produce a barrier to their movement since they are not as valuable a product.

The principal disease of concern to Canadian livestock producers is pseudorabies. This viral disease is carried by hogs and although it has little effect on them, when transmitted to cattle or sheep it is fatal. Canadian health standards then, require live hogs entering Canada to be tested for pseudorabies. Hogs, which are negative to the test, may enter the country but are kept in quarantine for 30 days to ensure no presence of the disease. The cost of testing and quarantine is generally sufficient to act as an effective barrier and little movement of live hogs from the U.S. to Canada occurs.

The complexity of the regulations may also discourage the flow of product across the border. When a Canadian packer receives an order from the U.S., he must obtain several forms from the Department of External Affairs. Five copies of form AGR-1450 and six copies of form

AGR-1454 must be completed with the following data: name, address and country of the exporter and importer; the type of product and a description including quality and condition (fresh or frozen); the weight in pounds; place of slaughtering and processing; number of cartons (if applicable); the exit point from the exporting nation; and the entry point in the importing country. The forms must be signed by a veterinarian and copies are kept by the exporter, importer, External Affairs, Canadian Customs and inspection officials on both sides of the border.

The border crossing point requires a form, B-13, which includes the information detailed above as well as the Canadian dollar value of the shipment. Generally, the exporter will hire a customs broker to liaison with the American inspection officials, to pay the tariff and inspection fees and to make any arrangements that may be required. Currently, the brokerage fee is about $35 per truckload and two percent of the tariff. The costs associated with the inspection depend partly on the type of inspection station used. If the station is operated by the USDA, there is no charge for the actual inspection but a fee is levied for loading and unloading the truck. The fee is higher if the loading takes place during non-regular hours. The duty is even higher - about $150 per truckload - if the inspection is done at a station run independently of the USDA. The exporter must pay these charges and they can act as a barrier to trade in themselves. Currently the inspection fee is about .45 cents per pound compared to a tariff of 2 cents per pound. This makes the fee a <u>de facto</u> tariff and the level can be raised at the discretion of the importing country.

In some cases it is the regulation itself that acts as a barrier to trade. Health regulations are a prime example. There are some U.S. states, including Nebraska, Iowa and South Dakota, that are trying to limit pork imports into their jurisdictions. Countervailing duties have not been successful in slowing the movement of hogs and the relative strength of the American dollar has exacerbated the situation. In an attempt to find alternative methods, these states have banned any product that has been exposed to the drug chloramphenical (Goodloe). The onus is on the exporter to definitively prove that the hogs have not been given that particular drug. Proof is virtually impossible to provide and the regulation has acted directly as a barrier to trade. Such deliberate attempts at reducing trade are especially easy to implement with the use of health regulations and some prior knowledge of the exporting country's method of production.

Canadian health standards for the cattle industry are currently set up to maintain the health of the national herd with regards to four important diseases - brucellosis, blue-tongue, anaplasmosis and tuberculosis. For export purposes Canada is considered disease-free with regards to the first three, and virtually free of tuberculosis.

Brucellosis is a microbial disease which attacks the placenta of pregnant animals leading to abortion of the fetus in over 40% of infected animals. Spread of the disease occurs by direct contact of healthy animals with disease-laden afterbirth or discharges, or through the use of carrier bulls who may harbour the infection in the testicles. The usual method of elimination of brucellosis is through detection and slaughter of infected animals.

Blue-tongue is a viral disease characterized by a swollen, painful mouth in cattle which causes loss of condition due to poor appetite. It is seldom fatal to cattle but is very contagious and can spread to sheep herds where mortality rates are high. Cattle will recover from the disease but prevention of its spread requires isolation and slaughter of infected animals.

Anaplasmosis is a microbial blood disease spread by blood-sucking insects such as ticks and flies. It causes an anemic condition with 40-60% mortality in older animals. The insect vectors of the disease do not survive well in the Canadian climate so it is not usually a disease of major concern. The Southern U.S. however has a high incidence of the disease. Wildlife populations often serve as a reservoir for the disease making complete elimination of it difficult.

Tuberculosis is a well known bacterial disease which affects a wide variety of animals including man. It causes a generalized wasting of older animals leading to loss of production.

The major hinderance to the flow of feeder cattle from the U.S. to Canada is at present the Canadian requirements for testing of imported cattle for blue-tongue, tuberculosis and anaplasmosis. The test for blue-tongue requires a three week waiting period between test and results meaning cattle bought in the U.S. must be held in quarantine for approximately 21 days at $1.50 per day, adding $31.50 per head to the buying price. A demand for U.S. feeder cattle by Eastern Canadian feeders exists due to lower transportation costs between the cattle market in Eastern U.S. and Ontario than between Western Canada and Ontario. As well Western feeders would find it profitable to import feeders from the U.S. at certain times if the delay required for quarantine did not exist.

An alternative to dropping the health standards in Canada would be a streamlining of the testing procedure to put it in line with current tests for brucellosis which take only three days. The devastating effect that could occur to the Canadian livestock industry because of a reintroduction of brucellosis and blue-tongue, and an increase in anaplasmosis and tuberculosis is well understood by Canadian producers. It has been estimated (O'Riodan, 1979) that an introduction of brucellosis into the national cattle herd at from 1.2-2% incidence would cut off completely our exports of breeding and feeding animals and would result over twenty years in a net present value of losses totalling $81.1 million (expressed in 1985 dollars). As well since undulant fever, a non-fatal but temporarily debilitating disease of humans transmitted from cattle with brucellosis, would be expected to increase if the incidence of brucellosis increased, the cost of treating victims over twenty years has a net present value of approximately $68.3 million (1985 dollars). An additional cost to Canadian cattle producers would arise in the loss of calf crop which can be over 40% for herds infected with brucellosis and an actual loss of breeding stock would occur as reactors are slaughtered to try to contain brucellosis outbreaks. Vaccines are available but animals vaccinated can then not be exported to many countries although the U.S. requires animals to be vaccinated.

Introduction of blue-tongue would be equally as devastating for Canadian producers. Even a very small outbreak anywhere in Canada will shut off exports of breeding stock, semen or embryos to any country with a sheep industry. Blue-tongue is not fatal to cattle but it is extremely contagious and is fatal to sheep so countries such as

Australia and New Zealand will not import from countries where any threat of blue-tongue exists. Canada's export of cattle and semen to these two countries totalled $2.3 million in 1984. As well as jeopardizing our export industry blue-tongue would also result in lost production to Canadian feeders due to its debilitating nature and if it spread to our domestic sheep population could wipe out a large part of this $23 million industry.

An increase in anaplasmosis and tuberculosis may not have as devastating an effect on exports from Canada but would certainly increase costs to livestock producers. Both are debilitating diseases with low or moderate fatality rates but contraction of the diseases means slaughter for the animals and loss of production for the owners.

All of these diseases represent real losses to livestock producers and would result in greatly increased costs to the government as well. Besides the loss in exports and possible increase in medical expenses for undulant fever victims, the government would need to increase its testing of domestic herds for these diseases and would find itself involved in costly watchdog operations as disease outbreaks occurred.

The consequences of eliminating or substantially relaxing Canadian animal health standards would be very costly to Canadian livestock producers. Producers themselves understand this which is why they are not advocating this course. Instead they emphasize the need to develop a quick but accurate test for blue-tongue which will allow animals to cross the border with a minimum of time in quarantine but still maintain the high health standard of the Canadian herd.

Other regulations are a little more subtle in their effect on trade. The regulations for the importation of boxed beef and carcass beef into the U.S. are identical except that carcass beef cannot have the Canadian grade physically marked on it. Most carcass beef held in storage by an exporter is apt to be already graded. Consequently, in order to take advantage of an export opportunity, the packer must specially process some carcasses for the export market. This means that the time required to meet the regulations is artificially lengthened and short term export opportunities may be missed as inventoried beef cannot be used to fill orders.

Differences in the markets of two countries can lead to inconsistencies in the regulations that restrict the across border flow of product. One example is packaging regulations. This has become more of an issue with pork than beef because more of the former moves in a processed state. Canada has been moving toward the metric system in which the standard sizes, such as 500 grams, do not directly convert to the standard imperial sizes, such as one pound, used in the U.S. The Canadian government does not want Canadian firms to use non-standard metric sizes. This precludes exporters from using the standard imperial sizes and marking them in metric equivalents. Therefore, firms wishing to export to the U.S. market must have dual packaging systems. This can be cumbersome and expensive. These types of problems may also have unexpected externalities. Such difficulties may be one of the reasons that Fletchers purchased its plant in the U.S. This will result in a loss of value-added to Canada. In order to avoid such occurrences and to facilitate trade flows, Canada may have to adjust some of its regulations concerning packaging and French language requirements to more closely match the specifications of the U.S. market.

The most important example of market and regulation inconsistency, and perhaps the largest non-tariff barrier to trade, is the grading system itself. Over the years, Canadians have expressed their desire for lean tender beef. This is reflected in our grading system which is very specific and narrowly defined, tailored specifically for Canadian tastes. These exact specifications have provided valuable information to beef producers. With an exact end product in mind they have developed genetic traits in animals such as the ability to grow quickly and production systems such as confinement and grain supplement feeding programs that will result in a product with the desired characteristics (Kerr, 1985b). Only about 14% of the cattle produced for beef do not fit into the top grades, A1 or A2. The production costs mean that a premium price for the product is required but Canadians have had the income to meet this. The domestic market grew rapidly so that export markets were not important.

The exactness of the specifications allows the domestic market to operate efficiently despite large geographical dispersement. The industry is not vertically integrated and each level - purebred breeder, cow-calf operator, and feedlot - has one specific output. As only one type of output is required there can be many buyers and sellers with access to several markets or outlets and some form of competition is maintained. Planning is relatively easy because every player knows that a specific product will command a premium price.

The result therefore is a product tailored to Canadian tastes and a marketing system tailored to meeting domestic demand. The market works well and Canadian producers are very successful. It is however, this success at satisfying domestic demand that creates problems for the

export of beef. Not all potential customers have the income level of Canadians that would allow them to purchase our product. Even for customers who may be able to afford it, such as the Americans, the characteristics desired by them may not be the same as those desired by Canadians. In trying to meet more diverse demand, our domestic method of marketing may pose the most serious problem.

An example will help illustrate some of the problems that may arise in an attempt to expand Canadian export opportunities. As Canada has developed a grading system to reflect domestic tastes, other countries have developed similar systems tailored to their domestic preferences. The U.S. grading system allows for more fat in their grades than do Canadian standards. Our grades A1 and A2 are too lean to qualify for the top American grades. The fattier product that is considered a mistake by Canadian producers would be suitable for the prime U.S. standards but the Canadian system does not produce much of this product because it does not suit our tastes.

If Canadian producers wish to export to other markets, they must develop a system to produce a more diverse product. However, the domestic demand will still have to be satisfied. This implies that only part of the Canadian industry would be geared toward export and a change in market structure may be required. For example, the product destined for various markets will have different characteristics from market to market and volumes are not likely to be large. Exports of this nature will tend to be on a lot by lot basis. A processor receiving an order for beef of a certain quality and with certain specifications will have to inform the packer of the requirements. The packer in turn must inform the feedlot as to what type of animals it needs. The cow-calf

operator must also be involved if a different genetically controlled trait is required.

In this situation, the signals from the market must come before the production process begins. Our current system is based on price signals coming only after production is completed; that is, when the farmer delivers his cattle to auction. In order to facilitate the export markets, a greater degree of vertical integration would be necessary. Designated sales are another possibility although this does pose additional problems. If a tailored order for a specific product was cancelled, the product would have to be sold on the Canadian market. As its characteristics would not match those desired by Canadians, it would command a non-premium price. This cost would have to be borne by some party in the production-to-market chain. The problem arises as to which party. In a vertically integrated system, this question would not arise. Further, a system of designated sales implies that the primary producers no longer have a choice in the marketing of the product. The resulting unequal market power could lead to exploitation. In a freer trade situation, the U.S. may have an advantage because its industry is more flexible and has a higher degree of vertical integration. Currently, Canadian product which moves to the U.S. and which conforms to the highest U.S. grade are "mistakes" by Canadian grading standards and discounted in the marketing process. Some means needs to be found for price signals ex ante to the production process to stimulate product tailored specifically for the U.S. market.

Increased export opportunities implies the need to understand several different sets of importing rules and regulations. The Canadian experience in this area has been limited and far more expertise will be

required. Potential exporters have few contacts in the American market and their information on trade regulations and specifications is erratic. The general understanding of rules concerning quality control, packaging, trimming and cutting is poor. This lack of experienced manpower will not be easily overcome.

Although there will be difficulties in adjusting to a more export-oriented market, there are opportunities available. While it is our current grading system that creates some of the difficulties, it is the current American grading system that provides some of the opportunities. The U.S. system is somewhat out of date, especially with the recent health concerns of consumers, particularly those in California. It encourages production of fatter product than some consumers desire (Kerr and Ulmer). This has meant that more product is either not graded by the USDA or is graded to industry determined specifications by packers and retailers. The movement away from grading by federal standards is a benefit to Canadian exporters because their leaner quality product is well suited to such tastes but will not fit into the top USDA grades. There have been a few marketings of Canadian product in the California market on an experimental basis. The initial indications are quite positive.

The export of product to the American market can take many forms and each form has implications for the value-added that will accrue to Canada. Obviously, the greater the degree of processing prior to shipment, the greater the benefit to Canada. However, the differences in the grading systems can affect our ability to export processed product. For example, carcass beef crossing the border must be labelled as Canadian and it cannot be graded according to USDA standards. Many

restaurants and retail outlets have built their reputation on serving or selling only "prime U.S. beef." Such outlets would not be amenable to Canadian product. There may also be consumer resistance and lobbying by American producers if Canadian labelled product becomes too visible.

The form of export which would meet the least amount of resistance is live animals. Once the cattle cross the border, they can be slaughtered and graded to USDA specifications. At this stage in the process there is no way of differentiating between Canadian or American grown product. While live animals may be the easiest export form they also have the lowest degree of value-added. U.S. beef faces similar problems in the Canadian market. In order to facilitate freer trade, the requirement for country-of-origin labelling should be eliminated and cross-national grading should be allowed. The Canadian system could be made more flexible to allow for a greater diversity of product.

While the grading discussion to this point has centered on beef, there are also similar problems in pork although they are not as severe. The American and Canadian systems are different. The grading system in Canada provides more information for the producer than the consumer. It is a grid system based on fat cover and carcass size. A standard carcass with average fat rates a 100 index, superior, lean carcasses rate over 100 while poorly finished or over fat carcasses rate below 100. Fat measurements are done manually although there is some experimentation using electric probes for this purpose. The adoption of this method of fat measurement will mean a greater degree of exactness so that the leanness of the product can be calculated.

The American system for grading pork tends to be quite subjective. There are five grades - U.S. No. 1 to 4 and U.S. Utility -

that are derived using a formula which takes into account the muscling score and the estimated thickness of backfat over the last rib. There are specific ranges to which the latter must conform; that is, U.S. No. 1 must have less than 1 inch, U.S. No. 2 - 1 to 1.24 inches, U.S. No. 3 - 1.25 to 1.49 inches and U.S. No. 4 - 1.5 inches and over.

While differences between the two grading systems exist, they do not pose as serious a problem for pork as they do for beef. The U.S. regulations do not require pork to be graded so less pork is graded relative to beef. Consequently there is less consumer identification with grades. While Canadian product must still be labelled as such, American consumers are familiar with products such as 'Canadian bacon' or 'Danish ham.' Therefore, grading prior to shipment and country-of-origin labelling meet less consumer resistance for pork products than they do for beef products. Although grade differences do not constitute a major trade barrier in pork, harmonization should still be addressed in free trade negotiations.

The regulations discussed above alter the free flow of product across the border and as such constitute disguised non-tariff barriers. Another method of altering trade flows is to change the existing regulations periodically. This can leave exporters temporarily unable to comply with the new regulations. Shipments may be rejected and the delay and cost associated with the new compliance may lead to reduced imports on a short term basis. For example, all markings and symbols used in packaging and shipping must be approved by the USDA prior to shipment. The information is immediately accessible to all inspection stations and inspectors through the department's computer network. Approval is premised on the existing regulations only. If these

regulations change, approval must be sought again. Until it is granted, the exporter may not ship any product.

Imports can be restricted permanently if the regulations are changed frequently. Security of supply may be one of the factors considered by an importer when deciding to award a sales contract. The order may be lost if the exporter has many delays or shipment rejections due to changes in the import regulations.

There is another disguised barrier to trade which is quite important although it is not limited specifically to beef and pork. It arises in the trucking industry. Almost all beef and pork products are moved south of the border in refrigerated trucks. All carriers are regulated through the use of operating authorities for specific routes and cargos. Therefore a firm can haul a particular product to a particular market but it does not necessarily have the authority to haul a different product back. The trucks hauling beef are ideally suited to bring fruit and vegetables back but the return trip is often made empty. This situation remains because it is a very costly and lengthy procedure to get additional operating authorities. This increases the cost of shipping because the costs cannot be spread among exporters. These costs constitute an effective barrier to trade. The United States has had a history of using such operating authorities in its trade dealings; that is, there is often a regulation stating that products must be moved in American transportation. An externality that has arisen in both Canada and the U.S. is that the trucking industry generally has more excess capacity than it would have in the absence of the manipulation of operating authorities because many producers and processors have chosen to operate their own transport. In any case, any discussion on free trade must consider the trucking situation specifically.

One of the most effective barriers to trade with the U.S. is the regulation of the Canadian trucking industry. The cost of regulation, in an indirect sense, leaves Canadian truckers less competitive than their American counterparts. The costs of this regulation to Canadian beef and pork producers include: higher rates via less competition in the Canadian trucking industry; excess capacity; and a high percentage of empty backhauls. As almost all cattle and swine (and their respective products) are transported by trucks, the amount of trucking regulation becomes very important when the issue of free trade is discussed.

The main difference between the two country's regulatory systems for trucking appears where the respective authority lies. Canadian trucking regulation is delegated to the provinces. Every province, then, has its own rules and regulations regarding trucking, and there is no overriding federal agency, whereas in the U.S., all interstate trucking is controlled by the Interstate Commerce Commission (ICC). Individual states do have regulatory authority, however it is, for the most part, non-economic regulation and can be overridden by the ICC (Harper, 1982).

The second difference between the two country's regulatory restrictions comes under the heading of entry into the industry. The Motor Transportation Act of 1980 in the U.S. has decreased the barriers to entry through a rewording of the Act. Now, "a certificate of public convenience and necessity to a common carrier motor trucking applicant [will be granted] if the Commission finds (1) the applicant to be fit, willing and able to provide the transportation and to comply with the

law and the regulations of the ICC; and (2) that the service proposed will serve a useful public purpose, responsive to a public demand or need, unless the Commission finds that the transportation is inconsistent with the public convenience and necessity" (Harper, 1982, p. 530). In addition, the burden of proof was shifted from the applicant to the existing carriers to prove the applicant is not needed, and should not be granted a certificate to transport. Thus the degree of competition within the trucking industry has increased.

In the U.S. the Motor Transport Act (MTA) of 1980 also increased the list of products exempted from the regulatory process. The list now includes a variety of products in an attempt to reduce the empty backhaul caused by exempted agricultural products. Agricultural products were previously and are currently exempt from all economic regulation if the products are not manufactured. The U.S. Supreme Court ruled that "a commodity is not manufactured if it maintains its substantial identity after the processing or other operation has occurred" (Harper, 1982, p. 538). There have also been many other deregulations of the U.S. trucking industry, however they are not as important to the discussion at hand.

The Canadian trucking regulations are in sharp contrast to that of the U.S. Entry into the Canadian trucking industry is relatively difficult. A trucker, or trucking company must get authority from the province of origin as well as the province of destination in order to transport any product across Canada. There are no exemptions. In addition, carriers from the U.S. must also submit a copy of the ICC authorization to transport a particular good. The problem with entry comes from the fact that the burden of proof is on the applicant to

prove his services are necessary. He must also prove there would be no damage to existing truckers on that route. The existing truckers may protest to applicants. The result is a very effective barrier to entry.

Furthermore, once a certificate is granted by the ICC it is forever. Thus a trucker could get authorization for a variety of goods and transport only those he chooses, and thus increase competition. In Alberta, a certificate is only good for a three year period, and then must be renewed. Also, the board may at any time review an authority issued and if "it has not been fully exercised within six months from the date of issue or during any period of twelve consecutive months" the board may either cancel or amend the certificate "to accord with the actual extent of the exercise of the authority" (Smith, 1985). This means truckers must specialize and only transport one or a few commodities. The result of this is a lessening of competition, and (presumably) higher costs for trucking.

The logical way for the system to operate would be for refrigerated beef or pork trucks to transport meat to the U.S. and bring back vegetables from the U.S., which also require a refrigerated truck. However those who hold the certificates for transporting vegetables do not necessarily have authority to transport meat (say beef or pork) from the respective Canadian authorities. The result is empty backhauls from Canada to the U.S. (from vegetable imports) and also from the U.S. to Canada (from meat exports). This extra cost of empty backhauls is a great inefficiency in the system, and it lies with us. There is no problem on the U.S. side of the border as all agricultural products are exempt from regulation.

(c) Structural

Structural barriers to trade are those subsumed within existing regulations but which are subject to administrative interpretation and manipulation. In many cases, there is no intent to restrict trade in the wording of the regulations. Barriers arise because it is impossible to define the meaning of the regulations rigorously enough to prevent officials from interpreting them in such a way as to alter the flow of trade. While some of these instances may appear trivial, they can constitute a very effective short term barrier to trade.

A few examples will serve to illustrate the problems. In order to export to the United States, beef and pork packers must have their facilities approved by the USDA. U.S. exporters must also be certified by Agriculture Canada. In the case of Canadian exporters, Agriculture Canada actually does the inspection but it is done in the presence of USDA officials. It is up to those officials to ensure that the packing facilities are sanitary in accordance to the U.S. regulations. If conditions are unacceptable, plant certification can be revoked or denied. In a worst case scenario, the exporter would not be able to ship any product across the border until a subsequent inspection indicated compliance with the regulations. The structural barrier to trade lies in the fact that the definition of sanitary is open somewhat to the personal interpretation of the inspector. An extremely strict interpretation could effectively reduce or stop trade in the short run.

A similar barrier could arise with respect to the forms and paperwork which must be filed. Product may be refused entry if these are not completed in their entirety or if they are not filled out properly. The definition of what constitutes incomplete or improperly

completed is somewhat arbitrary. Imports may be restricted if the importing country embraces a strict interpretation. The effect of such arbitrary rulings can be reduced by allowing those filing forms to correct small errors at point of entry and by designing better forms and procedures.

The markings used in packaging and shipping must be approved by the USDA prior to any exports being accepted. As this is an administrative procedure, the length of time required for approval can be altered as desired. Opportunities in the export market can be limited in duration and a lengthening of the approval time can effectively limit trade flows.

All meat imports to the U.S. are visually inspected at the border by officials from the USDA. These inspectors may examine a random sample of the cartons (known as skip-lot) with the help of a computerized selection process. This procedure generally takes about three hours. The officials may also choose to inspect every carton (known as full-lot) and this requires six hours. Obviously the chances of finding unsatisfactory product or packaging increases with the number of cartons inspected. All or part of a shipment may be refused if the product is not sealed or preserved properly, the quality is poor or is not as stated. The quality may be unsatisfactory if there is too much fat or bone, the product is damaged or bruised, foreign matter is present or if there are bones in supposedly boneless meat. An increase in the number of full-lot rather than skip-lot inspections may imply an attempt to reduce trade flows. Rejected product is returned immediately and is inspected by Agriculture Canada to verify the reason or reasons that it was rejected. The arbitrary nature of such decisions could be reduced with the standardization of inspection procedures.

Border inspections are particularly open to bureaucratic licence and, as mentioned above, refusal of product has economic effects which are much greater than the direct costs associated with lost sales and product deterioration because of the perception of risk created for Canadian sellers wishing access to U.S. markets and U.S. firms concerned about security of supplies from Canada. Certainly there will be legitimate refusals of product but one would expect these to be relatively constant from year to year. This does not appear to be the case for beef and pork. This is illustrated in the following table. Between 1976 and 1984 refusals for beef ranged from approximately one half of one percent per year to almost three percent. A similar range of variation is observed for pork over the period. Although this is not evidence of overt manipulation, it does suggest that the strictness of inspection can vary considerably and hence is open to manipulation and should be of concern. It is interesting to note that both beef and pork show large percentage increases in the quantity of product refused entry in 1983 and 1984 when U.S. farmers were suffering from low returns and the value of the U.S. dollar was at an all time high.

One would expect that pressure for the stricter application of border inspections would arise when U.S. prices are falling. When U.S. prices are rising pressure for inspection strictness would abate and the percentage of refusals would decline. In other words when U.S. prices are falling, refusals of product should increase relatively and when U.S. prices are rising, refusals of product should decline relatively. In short they should move in opposite directions. This relationship appears to be borne out for beef in Figure 1 which follows. Although this is not conclusive evidence by any means there does appear to be an

inverse correlation in the movements of prices and refusals for beef. Certainly the magnitudes are not strictly symmetric but the directions of change are as one would expect. A stronger relationship would likely arise if information on net returns could be obtained.

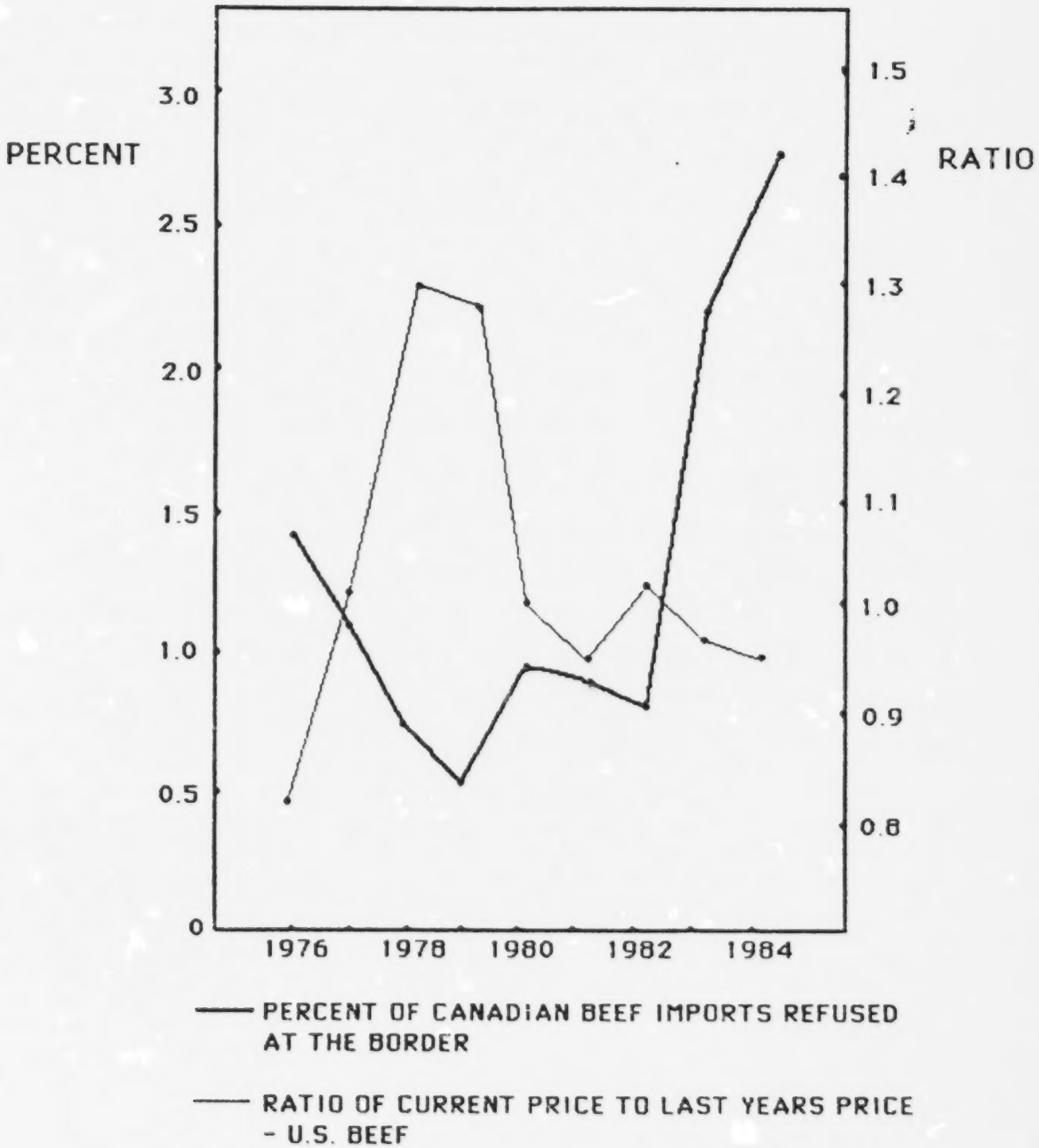
Canadian Exports and U.S. Refusals of Product of Canadian Origin

	BEEF			PORK		
Year	Canadian Exports* (lbs.)	U.S. Refusals** (lbs.)	%	Canadian Exports* (lbs.)	U.S. Refusals** (lbs.)	%
1976	82,734,100	1,176,376	1.42	17,797,700	458,917	2.56
1977	74,995,700	877,244	1.17	18,660,200	578,701	3.10
1978	62,089,400	535,403	.86	42,249,500	869,252	2.04
1979	75,879,400	361,421	.54	83,079,600	642,441	.77
1980	91,114,200	870,501	.96	162,041,200	1,240,507	.77
1981	114,635,800	1,066,108	.93	164,624,200	1,297,814	.79
1982	122,094,300	1,064,461	.87	237,666,500	990,871	.42
1983	56,425,000	2,730,021	2.19	104,992,000	1,734,622	1.65
1984	140,667,000	3,808,477	2.70	306,092,300	3,171,255	1.00

Sources

*Statistics Canada, 65-202.
**Meat and Poultry Inspection, Report of the Secretary of Agriculture to the U.S. Congress, Annual.

RELATIONSHIP BETWEEN U.S. BEEF PRICES AND BORDER REFUSALS



V. Domestic Institutions

There are some institutions and structural factors on both sides of the border that will affect or be affected by free trade. Perhaps the most obvious institutional example on the Canadian side is the existence of provincial hog marketing boards. These boards are not concerned with supply management; rather, their mandates call for the coordination of marketing in an efficient, rational manner. They have evolved into single sellers. If free trade results in a flow of hogs into Canada, it is not intuitively obvious whether or not these hogs would, or should, fall under the jurisdiction of the various boards. It would be difficult for the boards to fulfill their mandates if a large portion of the hogs sold were not under their control. The necessity of such boards, or the role they should play, must be examined carefully prior to a free trade agreement.

Another institutional factor in the pork industry is plant size. There are significant economies of scale available, especially in hogs. Plants of optimum size may be found in the U.S. but the Canadian market has simply not been large enough to support them in Canada (Kerr and Ulmer). This will affect the ability of Canadian producers to compete effectively. If market access to the U.S. could be attained through a free trade agreement, larger more efficient plants could be built in Canada to service the large U.S. market. For such construction to take place there would have to be a very strong non-abrogation clause in the free trade agreement. This is because of the large investments required to build world scale plants. If the treaty were abrogated after a plant was constructed in Canada then that plant would have a market of only 25 million people. If the same plant were built in the U.S. and the treaty

were abrogated the market would be in excess of 230 million. Hence, processors, either Canadian or American, would have an incentive to construct their plants in the U.S. unless market access could be ensured by long term non-abrogation clauses. If plants were built in the U.S. for this reason Canada would, of course, lose considerable value-added and employment. This would be particularly important for Western Canada as much of the gain in exports would come from accessing the West Coast U.S. market. For the processing industry then, the strongest case should be made for long term non-abrogation of the treaty.

Another factor that will impact on Canadian competitiveness is wage rates. In the past, labour rates in the Canadian packing industry were similar to those in the U.S. However recent events in the U.S. have resulted in a significant decrease in their rates. As an illustration of the magnitude of the problem, in the beginning of 1984, Canadian wage rates began at around $11 per hour while those in the U.S. had fallen to a low of $5 per hour. Currently the damaging effect of this situation is partially offset by the relative exchange rate between the two currencies. However, the exchange rate cannot be relied on to compensate for the wage rate differential over the long run.

Economies of scale and wage rates could adversely affect the competitiveness of Canadian producers. In a free trade situation, competitiveness is very important. The retail purchasers in the U.S. are interested in two primary qualities - guaranteed, constant supply and market-sensitive pricing. Canadian producers must be willing to make a long term commitment in manpower and financial resources to advertise and promote their product. They must be willing to continue to be a part of the U.S. market and to price competitively in that

market regardless of the opportunity value in the Canadian market. If Canadian producers withdraw from the American market when prices are too low or costs of production between the two countries get out of line, but are willing to return when prices rise, they will not develop a reputation as secure suppliers. Each subsequent repenetration of the U.S. market will be more difficult. U.S. purchasers want suppliers that will supply product at market-sensitive prices at all times, not just when the U.S. market is more lucrative.

There is one more factor that should be mentioned. This relates to the reputation of Canadian businessmen. Schmitz (p. 157) states:

> "Many Canadian businessmen are seen as being unaggressive, especially in the meat packing industry. Much of this industry is seen as being production oriented with little thought given to salesmanship, particularly in export markets.... Most meat packing personnel... appear to be "bystanders" as far as market development is concerned."

This reputation must be counteracted. Canadian producers must commit the time and resources to develop markets and to take advantage of existing opportunities. Free trade will not guarantee Canadian producers an export market. They cannot be "bystanders" any longer.

VI. Domestic Subsidies

(a) Canadian

Farm income support policies in Canada have two major objectives, although those objectives may be considerably intertwined in any given policy. These objectives are stabilization - to protect Canadian farmers from violent fluctuations in farm prices, and income enhancement - to slow or prevent the exit of farmers from the agricultural industry. In some cases enhancement may include policy objectives such as increasing the size of the rural sector or increased self-sufficiency in particular commodities. In these cases the enhancement of incomes attempts to encourage entry.

The terminology is often confused and the stated objectives of particular policies unclear. As a result one has policies with the stated objective of stabilization which in fact work as income enhancement policies and those whose stated objective is income enhancement which actually work primarily to stabilize income. Such lack of clarity may have considerable ramifications for trade negotiations as, for example, true stabilization policies may be far more acceptable than income maintenance policies within the context of trade. However, given the lack of clarity and confusion which exists with Canadian policies, most of the subsidies are likely to be subjected to considerable scrutiny in the negotiation process. As one of the major concerns of the U.S. is that "free trade" also means "fair trade," their primary concern may be with subsidized production. There is, of course, little doubt that U.S. production is heavily subsidized. Currently, however, as the U.S. dollar is extremely strong, imports have been increasing rapidly and producers in the U.S. find their markets

shrinking due to foreign competition (Goodloe). In other words, their subsidization programs are structured in such a way that they do not adjust farmer incomes to reflect exchange rate fluctuations. As a result both governments and organizations in the U.S. have become concerned over the increased imports and have begun to scrutinize the agricultural policies of exporting countries, including Canada, much more closely than in the past (National Commission on Agricultural Trade and Export Policy). The definition of "unfair" trade is likely to be egocentric in any case and should not be confused with some academically definable state of the world where there is no advantage to be given to one party or another. We do not have and never will have the "first best world" in international trade where resource specialization and relative factor costs will be the only determinants of absolute or comparative advantage and hence the determinants of production and trade. Given that governments interfere extensively in the commodity, factor and, through monetary policy, exchange markets, there will always be constraints created which will be to the advantage of some and the detriment of others in a trade sense. Many such constraints will have been established without any trade content or intent and may in fact have no "unfair" impact for considerable periods. As the world changes, however, they may become important factors in the importers' interpretation of what constitutes unfair. It should be remembered by Canadians that the current discussions over trade are being undertaken while the U.S. is in an extremely weak trade position and therefore will be particularly sensitive to "unfair" practices. As Canadians are in a relatively strong trade position we may be less diligent in attempting

to identify potential "unfair" practices. If some provisions are not negotiated ex ante to the agreement and Canada's trade situation detericrates in the future, say from a relative change in the value of the two currencies, Canada may be faced with large numbers of "unfair" U.S. policies and practices for which no provisions have been made in the treaty.

Policies which are likely to be objected to most strenuously as "unfair" are those which lead to ongoing market price distortions. These will primarily be policies which interfere in the market process ex ante to production. An example of this would be a deficiency payment scheme which announces payment, maybe not even explicitly, before the production period. Those which have a "cost of production" basis provide one example. Farmers produce output based on expectation of some minimum price based on costs of certain inputs. As this guaranteed price is likely to be above the market clearing price (otherwise there would be no need for a policy) there will be a production response as a result of the policy. As supply exceeds demand at the guaranteed price, to clear the market, prices fall. The policy pays the shortfall between the market price and the guaranteed price. In the context of trade however the market price is now below the cost of production and that is by definition "dumping," and an an unfair practice (Schmitz, Firch and Hillman).

On the other hand a policy which supports income only ex post is unlikely to be as severely criticized as unfair. An example would be if there is a bumper crop and the market clearing price declines. Subsequently the crop is sold and receipts distributed. There has been no market interference. If at this point the government wishes to make

a supplementary payment to farmers then the foreign government has little recourse to complaints of unfair competition as the market price reflects true market conditions. There has been no supply response and subsequent distortion of market price.

Canadian policies, especially provincial policies, have been moving to the ex ante method to a greater degree over the last few years. The reasons for this are quite obvious. Ex ante information allows for more efficient planning at the farm level and policies which have greater degrees of income enhancement than strict stabilization. They have been particularly important in provinces which wish to encourage entry and expand provincial production.

Ex post programs allow for the stabilization of income but do not allow for efficient planning. They may or may not be income enhancing depending on the level of support settled upon at each iteration. This may be a reasonable trade off to make in trade negotiations. Such programs allow sufficient flexibility in terms of stabilization and income maintenance which may be desired as social policy but do not provide the market distortions which lead to problems in trade. Clearly, however, the support rule must be sufficiently enigmatic that farmers cannot have sufficient information to plan output based on the expectation of payout. Such discretionary powers in the hands of the government is likely to be resisted by farm organizations who may fear that justifiable payment may be withheld in times of financial restraint or may be used in discriminatory fashion.

Programs may be of either the top or bottom loading type. Top loading programs attempt to supplement income by operating on the price of output directly. These are the most obvious of programs and are

likely to be the most severely criticized in trade negotiations. Canada has many more top loading programs in livestock than the U.S.

Bottom loading programs operate on the cost of inputs. They attempt to increase returns by reducing the cost of production. In livestock these tend to operate on three major costs - credit, feed (including irrigation) and information. Such policies are especially vulnerable to examination for ex ante market distortions. This is because the inputs are purchased before the production process begins and hence figure directly into the farmers' decision process. Further, as they are attempts to lower costs they, by definition, countervene the generally accepted definition of dumping.

Bottom loading policies may also often be the results of policies in other areas of agriculture. This is particularly relevant for the livestock industries who use the outputs of the grain sector as inputs to production. Hence policies used to enhance incomes in the grains sector may result in lower feed prices for livestock producers.

For example, in Western Canada, there is little trade in grain with the U.S. as a result of the Wheat Board. Thus policies which support grain farmers may not be considered "unfair" practices by the U.S. A subsidy on fertilizer however, may reduce the cost of barley production. This in turn may reduce the price of off-board barley and subsequently cattle and hog feeding costs. Hence the fertilizer subsidy may appear as an "unfair" practice in livestock trade. Although the bottom loading policies may be less obvious, the more the trade advantage moves against a country the more effort will be put into identifying such subsidies. Attempts to change the emphasis of policies from the obvious top loading policies to bottom loading policies are likely to be only marginally successful.

(i) Federal Programs

The major federal program to provide direct aid to cattle and hog producers is the Agricultural Stabilization Act of 1975 (ASA). This Act replaced the previous 1958 Act of the same name. The Agricultural Stabilization Act of 1958 had replaced the Agricultural Price Support Act of 1944. In 1986 the livestock provisions were further altered.

Under the 1975 Act slaughter cattle and hogs were "named" commodities which received automatic support. In addition other commodities may be designated to receive support. Designation comes from the Governor General in Council. In practice designation then, comes from the Minister of Agriculture. Feeder cattle were a major designated commodity in the Western Canadian livestock sector. The program was 100% Federal funded and all producers were automatically eligible. There were no limits on participation such as maximum herd sizes. Support was given on an annual basis.

The level of support for "named" commodities was based on an average of past prices. The prices of the five years previous to the year in question are used as the basis for calculation. Support was then based on 90% of the five year average. The government paid the difference, to all farmers, between 90% of the five year average and the calculated market price. The level of support then bore no relation to the actual price received by the farm operator for his particular lot of cattle. The five year average price was indexed in such a way to reflect the changes in the cost of production for the year in question compared with the average cost of production for the previous five years. As of 1986 a tripartite stabilization plan replaced the existing ASA mechanism for cattle and hogs. The plan is jointly funded by the federal government, provincial governments and producers. A complete evaluation of this program in a trade context will have to be delayed until the plan has been in operation for a few years.

Designated commodities, on the other hand, receive an arbitrary level of support if support is to be forthcoming. The percentage of the average of the previous five year prices is discretionary. There is also a cost of production adjuster similar to that for named commodities.

The ASA policies, thus represent an ex post policy. While it is true that the five year average price may be calculated by producers ex ante, the inflation adjuster on costs cannot. For designated commodities the ex post nature is even more obvious as farmers do not know if they are to be designated ex ante and hence cannot plan for assured payments. Hence ASA is less likely to be considered an "unfair" policy. This is especially true as payments are made considerably after the production has moved through the market. ASA Payments were included, however, in the 1985 pork countervail calculation conducted by the U.S. (Gilson, 1985). The major recipient of such aid is the dairy sector. Payments have been received by slaughter cattle (5 years), cow/calf (2 years) and hog producers (5 years) since 1975.

The weaknesses of the ASA program, "uncertainty of support, the after-the-fact timing of payments, the existence of government discretion, the insensitivity of annual accounting periods to short-term market realities, and the lack of likelihood that producers' decisions would be influenced by the program" (Loynes and Martin) which led to the desire by certain provinces for their own programs (Forbes, Hughes and Wharley) are the very properties which would make ASA-type programs more readily acceptable in the international trade context.

Policies of the bottom loading type are varied. Clearly all farmers, including livestock farmers, benefit from the net losses of the

Farm Credit Corporation; that is, the portion of the FCC operations which are subsidized by the government. Identifying what portion of this goes to livestock producers is however virtually impossible.

The payments for feed freight assistance through the Canadian Livestock Feed Board is a subsidy in the West to livestock producers in B.C. It could be argued however that it represents a detriment to producers within the Wheat Board Area. Transportation subsidies, both Feed Freight Assistance and the Western Grain Transportation Act (the so-called Crow Benefit) may prove extremely difficult to deal with in trade negotiations with the U.S. Although the intent of the programs is Canadian and deals with altering the regional distribution of production, they are still perceived by the U.S. as subsidies to agricultural producers on a national scale. For example in its interim report the U.S. National Commission of Agricultural Trade and Export Policy stated that

> "Canada subsidizes rail freight costs for certain grains, oilseeds, and products from the prairie provinces to the coasts under the Feed Freight Assistance Program and the Crow's Nest Pass Rate" (National Commission on Agricultural Trade and Export Policy, p. 39).

Basically the U.S. perceives the payments as a subsidy. As, in the international sense livestock from different regions in Canada cannot be differentiated, areas of the country with no subsidy will be tarred with the same brush as all others. This was made clear in the hog countervail case in 1985 when hogs from non-subsidized provinces such as Alberta were subject to the same countervail provisions as hogs from subsidized provinces (Gilson, 1985). Of course this should be expected as there is no way of ensuring the place of origin within Canada when commodity crosses the border. It can be expected that the

transportation subsidies may be an issue at the negotiation table and one which will be of considerable importance for Western livestock (with the exception of B.C.) even if there is no benefit received.

Other major federal programs which may be subject to scrutiny are: the payments to research - Unusual Contagious Diseases and Animal Pathology Programs, the research activities of Agriculture Canada, extension programs such as Canadian National Livestock Records; and R.O.P. inspection services - meat inspection, and the various programs for regional expansion insofar as they benefit livestock producers.

(ii) Provincial Programs

As of November 1985 British Columbia, Saskatchewan and Manitoba had functioning hog income support policies. In British Columbia there is the British Columbia Swine Producers Farm Income Stabilization Program. The program is financed on a cost sharing basis, 50% from producers and 50% from the provincial government. The plan is characterized by minimum and maximum coverage based on the number of hogs and a graduated entry program. The program payouts are determined by a negotiated formula based on costs of production for farrow-to-finish operations. Costs included are all cash, nonland capital, and land rental costs. There is a provision to give a return to operations labour. The program is rich by Western standards. Recent support levels have been $6 - $7 per hundredweight higher than those in Saskatchewan and Manitoba.

The Saskatchewan Hog Assured Returns Program is jointly financed on a 50/50 basis by hog producers and the provincial government. It has

a maximum number of hogs (1,500) for which payment will be made. New producers enter with full participation. Re-entry is pro-rated over a year. Payments are made quarterly and the fund may borrow to cover short-term deficits. The support level is based on costs which are survey averages. Costs included when determining the level of support are: (1) all cash costs and (2) 85% of noncash costs including depreciation, returns to investment in buildings and the imputed value of operator's labour.

The Manitoba Hog Income Assurance Plan is producer funded with the exception of a $5 start-up grant from the province. As such it does not represent ongoing subsidization.

Manitoba, Saskatchewan and British Columbia all have programs for beef producers. The Manitoba Beef Plan is operated through the Manitoba Beef Commission. It has as objectives income enhancement and stability and increased provincial value-added. The province supports the plan at a rate of 2% of gross value of provincial marketings. The level of support is based on costs but producers may participate at different levels of benefits related to the levels of premiums which they pay.

The Saskatchewan Beef Stabilization Program was established in 1982 and is operated by the Saskatchewan Beef Stabilization Board. The government supports the policy through a contribution of 2% of the gross value of marketings which is matched by producer contributions. The level of support is based on 100% of cash costs and 50% of noncash costs. Payments are based on the difference between the calculated costs and the weekly average A1 - A2 steer prices and are made quarterly.

The British Columbia Beef Producers Income plan was established in 1974. Its objective is to stabilize and support incomes. The program is based on a cost of production formula. Payout is calculated on the difference between market prices and the calculated cost of production. The producers and the government share 50/50 on the loss on price. The government portion of the payout was over $70 million between 1974 and 1981.

The most obvious feature of all those provincial programs is that they are top loading and based on the number of animals marketed. In the trade context this makes these programs particularly vulnerable to charges of unfair competition as was evidenced by the recent pork countervail problems. The different levels of support mean that if countervailing duties are applied they will affect producers in an unequal manner and in inverse proportion to the provincial level of support. Of course provinces outside the West have policies which also affect the level of countervail.

On July 3, 1985 the Government of Alberta announced the Alberta Feed Grain Market Adjustment Program. The stated objective of the program is to "neutralize the serious disadvantage imposed on Alberta livestock producers by the current method used to pay the Crow Benefit" (Government of Alberta). The estimated cost of the subsidy is $51.5 million for 1985-86 and $61.5 million in 1986-87. Starting September 1, 1985 the Province of Alberta began paying Alberta feed grain producers a subsidy of $21 per tonne on all net sales of feed grain sold for final consumption within the province. This in effect represents a bottom loading subsidy on the production of cattle and hogs. Regardless of the intent of the program this subsidy is likely to come under close

scrutiny and may be considered unfair competition within the context of international grade in livestock products.

(b) U.S. Programs

(i) U.S. Federal Government

The U.S. Federal Government has a large number of support programs for agriculture. These can be divided into two main categories: expenditures for research and extension and expenditures for the stabilization and conservation. there is virtually no direct support for beef or hog farmers as there is in Canada. Some of the programs, however, have large indirect effects on the producers of these commodities. This is particularly true for the expenditures whose intent is to stabilize the grains industry. Of course expenditures for research and extension also constitute indirect subsidies for such commodities.

A breakdown of U.S. federal assistance to agriculture in the 17 Western Canadian trading area states is presented in Table 1. A brief description of the major components of the programs follows.

Table 1: FEDERAL ASSISTANCE TO AGRICULTURE - 1984 (,000 $)

	Arizona	Calif.	Colorado	Idaho	Illinois	Iowa	Michigan	Minnesota	Montana	Nevada
1. Research and Extension Agric. Research Service (FY 1984)										
1) Animal Productivity	-	369	1,821.3	919.2	1,025.2	12,553.1	1,743.1	26.5	882	-
2) Plant Productivity	4,536.3	12,352.1	2,902.5	917.3	7,549.6	1,854.5	1,139.2	1,445.3	1,557.6	533.6
3) Soil and Water Cons.	3,521.9	5,869.6	3,949.9	2,953.3	1,119.2	438.8	-	2,212.7	-	-
4) Proc.,Stor., & Dist. Food Safety & Consumer Serv.	-	11,763.4	-	-	13,870.1	105.8	56.6	367.1	-	-
Total Ag. Res. Serv.	8,058.2	30,354.1	8,674.7	4,789.8	23,564.1	14,952.2	2,939.3	4,051.6	2,439.6	533.6
2. Agricultural Stabilization and Conservation Service (1984)										
a) Feed Grain Disaster Program*	-	1.3	4.6	-	.2	-	.3	-	1.2	-
b) Feed Grain Deficiency Program	378.4	1,448.6	3,018.7	6,969.4	32,083.8	68,409.4	11,525.5	32,731.5	12,123.7	31.2
c) Feed Grain Volunt. Diversion	323.7	1,238.5	1,865.2	113.2	3,322.8	1,998.7	2,007.6	2,051.1	159.0	.4
d) National Wool Act	1,792.3	9,717.2	6,661.0	4,534.8	861.8	2,741.7	611.0	1,953.5	8,539.8	1,143.9
e) Agric. Converv. Program	1,725.1	4,597.2	4,265.2	2,926.1	6,277.7	7,093.4	3,938.1	6,075.5	4,376.2	767.5
f) Emerg. Conserv. Program	4,531.3	3,119.8	526.7	204.0	9.8	267.2	8.6	-	-	315.3
g) Emerg. Feed Program	67.0	-	-	-	2.9	3.7	-	.2	2.7	-
h) Extended Storage	44.2	173.4	11,581.5	87,425.1	4,253.3	22,879.4	1,495.5	34,693.1	17,950.5	67.2
i) Plk Storage	90.2	5,673.4	899.8	650.0	8,898.4	15,246.9	2,572.4	9,935.5	1,150.7	-
j) Rural Clean Water	-	-	-	224.4	138.2	15.5	307.8	56.8	-	-
Total ASCS	8,952.2	25,969.4	28,822.7	24,047.0	55,798.9	118,655.9	22,466.8	87,497.2	44,303.8	2,325.5
Total Ag. Res. + ASCS	17,010.4	56,323.5	37,497.4	28,836.8	79,363.0	133,608.1	25,406.1	91,548.8	44,303.8	2,859.1

* Disaster Payments not made as of 1985 because Federal Crop Insurance available.

Table 1: FEDERAL ASSISTANCE TO AGRICULTURE - 1984 (,000 $) (CONCLUDED)

	N. Dakota	Oregon	S. Dakota	Utah	Washington	Wyoming	Nebraska
1. Research and Extension Agric. Research Service (FY 1984)							
1) Animal Productivity	1,516.6	-	-	798.7	1,491.3	-	6,898.6
2) Plant Productivity	5,823.9	2,605.6	1,396.0	2,005.7	6,352.0	300.8	1,556.9
3) Soil and Water Cons.	1,613.1	950.1	-	53.1	988.5	431.7	861.8
4) Proc.,Stor., & Dist. Food Safety & Consumer Serv.	-	-	-	42.0	455.6	-	-
Total Ag. Res. Serv.	8,953.6	3,555.7	1,396.0	2,899.5	9,287.4	732.5	9,317.3
2. Agricultural Stabilization and Conservation Service (1984)							
a) Feed Grain Disaster Program*	-	-	.2	-	-	.3	7.7
b) Feed Grain Deficiency Program	21,140.0	880.9	7,479.5	432.1	5,554.2	104.1	30,439.4
c) Feed Grain Volunt. Diversion	166.6	17.9	756.6	28.1	180.5	47.4	2,546.7
d) National Wool Act	1,937.3	3,627.0	8,909.5	6,306.2	556.7	12,637.0	1,506.2
e) Agric. Conserv. Program	3,836.4	3,332.7	2,339.3	3,734.2	4,025.5	1,601.2	4,225.4
f) Emerg. Conserv. Program	-	101.2	157.7	1,320.5	31.0	64.5	430.6
g) Emerg. Feed Program	-	-	-	-	-	-	-
h) Extended Storage	50,233.9	6,506.2	19,318.4	284.7	17,406.9	539.9	45,062.8
i) Plk Storage	3,599.5	230.2	3,303.5	46.0	536.0	45.1	10,083.3
j) Rural Clean Water	-	400.4	170.2	.4	-	-	110.3
Total ASCS	80,903.7	15,096.5	42,434.7	12,152.2	28,290.8	15,039.5	94,412.4
Total Ag. Res. + ASCS	89,857.3	18,652.2	43,830.7	15,051.7	17,578.2	15,772.0	103,729.7

* Disaster Payments not made as of 1985 because Federal Crop Insurance available.

Program Description

1. Agricultural Research Service

The programs of the ARS are varied and complex. They are primarily programs which transfer funds for research and extension.

2. Agricultural Stabilization and Conservation Service

Purpose of Programs. Production adjustment and price support programs are designed for the purpose of (1) stabilizing, supporting, and protecting farm income and prices, (2) assisting in the maintenance of balanced and adequate supplies of food, feed, and fiber, and (3) aiding in the orderly marketing of farm commodities.

These programs include commodity loans and purchases, various means of production control, payments, farm storage facility loans, and the farmer-owned grain reserve.

The programs are financed by the Commodity Credit Corporation (CCC), a government-owned entity, and administered by the Agricultural Stabilization and Conservation Service (ASCS).

a) Feed Grain Disaster

Disaster Payments. Disaster payments are authorized for wheat, feed grains, upland cotton, and rice only if Federal crop insurance is not available. An eligible producer may receive payment if prevented from planting any portion of the farm's acreage to these crops or other nonconserving crops because of drought, flood, or other natural disaster or condition beyond the producer's control. Eligible producers may also receive payment if the total quantity of the eligible crop harvested on the farm is less than the potential yield.

The Secretary may make disaster payments to producers when producers' losses cause an economic emergency. Federal crop insurance and other Federal aid must be found to be insufficient to alleviate the economic emergency.

To be eligible for any disaster payments, a producer must comply with acreage reduction program requirements.

Disaster payments under the wheat, feed grains, upland cotton, and rice programs combined cannot exceed $100,000 for each of the 1982 through 1985 crops. This limitation does not apply to CCC purchases, loans, or payments for public access for recreation.

b) Feed Grain Deficiency

Deficiency Payments. If the national weighted average market price received by farmers during the first five months of the marketing year (October 1985 through February 1986 for corn and sorghum; June 1985 through October 1985 for barley and oats) is below the target price, deficiency payments will be made to eligible producers. This payment rate will be the difference between the applicable target price and the higher of the five-month weighted national average price received by farmers or the national loan rate. Deficiency payments will be determined by multiplying the payment rate times the eligible farm program acreage times the farm program yield.

c) Feed Grain Voluntary Diversion

Paid Voluntary Diversion. If the Secretary determines that additional reduction in planted acres for a program crop is needed, producers may be offered paid voluntary diversion. Such acreage must be devoted to approved conservation uses.

d) National Wool Act

The National Wool Act of 1954, as amended, was extended through December 31, 1985, by the Agriculture and Food Act of 1981.

The amended Act provides that shorn wool be supported at 77 percent of an amount determined by using the formula set for in the Act. This amounted to a support price of $1.73 for 1985 marketings.

Wool support is carried out through payments to producers. The 1984 program applies to marketings in calendar year 1984.

Applications for payments should be filed with the county ASC offices not later than January 31 of the year following the marketing year for which payments may be due.

Payments were made in April 1985 for 1984 marketings.

The law provides for payments on shorn wool (raw wool sold on a grease weight basis) and on unshorn lambs (also known as pulled wool).

e) Agricultural Conservation Program

ACP is a cooperative endeavor by farmers, ranchers, government agencies, and other groups to solve soil, water, and related resource problems through cost-sharing and exchange of technical expertise. The program is nationwide in scope and emphasizes enduring conservation practices of long-term benefit to the public. Practices that are primarily production oriented or have little or no conservation or pollution abatement berefits are not eligible for ACP cost-sharing.

Under the regular ACP, cost-share levels are set by local committees and are fixed for each practice. A departure from this method uses variable levels of cost-sharing. The cost-share levels are based on the severity of the erosion and the percent reduction in soil loss obtained by installation of the practice. With emphasis on the most serious erosion problems, the cost-share per ton of soil saved is substantially less.

Practices similar to those under ACP are used extensively in related programs that define specific areas of soil, water, and forestry management, and pollution control.

Among soil-saving practices, ACP assistance is available for establishing terraces on land with steep slopes, planting grasses and legumes to anchor the soil, installing sod waterways and structures to divert runoff water, practicing minimum tillage and no-till farming and adopting other measures intended to control erosion, conserve water, or reduce pollution on agricultural land.

ACP funds help farmers reduce sediment, chemicals, and livestock wastes that contaminate streams and lakes by managing the flow of these pollutants at their source, by catching them in sediment basins, and by filtering them through grass and other plants.

ACP also provides assistance in establishing and improving timber stands with owners of small woodland tracts to reduce soil erosion, conserve water, improve wildlife habitat, and develop timber resources.

f) Emergency Conservation Program

The Emergency Conservation Program (ECP) provides emergency funds for sharing with farmers and ranchers the cost of restoring to productive use farmland seriously damaged by natural disasters, and for carrying out emergency water conservation measures during periods of severe drought.

ECP assistance is available only to help solve new conservation problems caused by a natural disaster that (1) impair and endanger the land, (2) materially affect the productive capacity of crop acreage, (3) represent extensive damage that, except for wind erosion, is not likely to recur frequently in the same area, and (4) result in repairs so costly that Federal assistance is justified to return the land to productive agricultural use. Conservation problems existing prior to the disaster are not eligible for ECP assistance.

Emergency conservation assistance is available for removing debris from farmland, farmsteads, and private roadways associated with farmland use, grading, shaping, and releveling farmland, and restoring permanent fences, dams, ponds, irrigation systems, and other installations. Assistance is based on the type and extent of the damage.

g) Emergency Feed Assistance Program

The Emergency Feed Assistance Program (EFAP) provides for the sale of CCC-owned lower-grade corn, grain sorghum, barley, oats, and wheat at 75 percent of the basic county loan rate to livestock producers whose feed harvest has suffered because of drought or excess moisture. Eligible farmers must have insufficient feed available to preserve their foundation livestock.

The Emergency Feed Assistance Program is national in scope. It is available to eligible farmers and ranchers in counties designated by USDA as disaster areas and in counties contiguous to such designated counties. Other counties may obtain a special designation for EFAP if factors adversely affecting livestock feed availability can be documented.

h) Extended Storage

Under the Agriculture and Food Act of 1981 the U.S. Secretary of Agriculture has the authority to administer a producer-owned storage program for wheat and feed grains. This program is known as the Farmer Owned Reserve Program (FORP). Under the provisions of this program, farmers wishing to place grain in the reserve sign a contract with the Commodity Credit Corporation (CCC) which states that they will store the grain in farm or commercial facilities for a period of three to five years. In return, farmers receive a loan on the grain at the same or higher rate than the regular CCC loan program offers. The Secretary may also provide farmers storage payments to encourage participation in the FORP and waive or adjust interest charges on loans.

Farmers may remove grain from the reserve when the market price is below the release price designated in the contract. To encourage farmers to put stocks on the market in times of rising prices, the Secretary has the authority to increase the interest rate on outstanding loans and to use other means to encourage the orderly marketing of grain is above the release price. The effect of this program on the livestock feeding industry is indirect. When grain prices are low feed grains move into storage and hence reduce the supplies moving onto the market. Thus the price of livestock feed remains higher than if the program did not exist. On the other hand, when grain prices are rising, stocks are induced to move out of storage onto the market and thus moderate or reduce the price of livestock feed. This represents a benefit to the livestock feeding industry and is a *de facto* subsidy for them.

i) PIK Storage

The Payment In Kind (PIK) Storage program was a temporary one initiated in conjunction with other acreage reduction programs. Producers were required to participate in the acreage reduction

program by removing 20% of their productive land from cultivation before they could be eligible for PIK. For the 1983 crop year farmers could set aside 10-30% of their productive acreage, on top of the required 20%, and receive from the government a quantity of corn, cotton, sorghum or rice equivalent to 80% of the lands' expected harvest. For wheat land removed they received 95% of the foregone harvest. This grain came from either Commodity Credit Corporation stocks or farmer owned stocks of grain. In 1984 the program was continued but only for wheat since reserve stocks of most other grains had diminished. In this year 10-20% of the productive land, over the required 20%, could be removed from production with the farmer receiving grain equivalent to 85% of expected yield. In 1985 the program was discontinued due to a dramatic drop in surplus grain stocks.

j) Rural Clean Water

The experimental Rural Clean Water Program (RCWP) aims to prevent or reduce the amount of sediment, chemicals, livestock wastes, and other agricultural pollutants entering streams and lakes.

The program provides long-term financial and technical assistance to owners and operators of privately held agricultural land in selected project areas who install and maintain Best Management Practices to control critical water quality problems in the area.

RCWP is designed to build on experience gained from ACP and other programs, but is limited to designated project areas with significant agriculture-related water quality problems.

(ii) State

The policies and programs of individual states are extremely complex and varied. They exhibit varying levels of federal, state and producer funding. They may be product specific, sector specific (all livestock) or general to all types of farmers. They may be top loading or bottom loading. Very little commonality can be found in the programs of the various states. In general, however, the means of support for livestock are indirect rather than direct. The breakdowns for state programs are provided in the Appendix along with brief descriptions of the major programs in each state.[1]

Identification of state levels of support is extremely important for the upcoming trade negotiations with the U.S. Without such information it will not be possible to determine the levels of policy harmonization which will be required within any free trade agreement. The recent countervail case illustrates how the more obvious and top loading policies of Canadian provinces can be used as arguments to initiate "unfair" trade practice proceedings. Detailed information on U.S. state level programs will be required before any significant negotiations on policy harmonization can take place.

The programs of the individual states are presented in the Appendix (part B). The information presented is more comprehensive than that required under the terms of reference of this study. As the

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1 This Appendix is available upon request

information had to be collected in any case it is included as it may be of interest for trade related discussions for other commodities which Agriculture Canada may be involved in.

For each state, a list of programs which affect the agricultural sector and a breakdwon of their funding sources is presented as taken from the individual State Budget. Funds are generally from four sources although each individual state may have a different way of accounting for their revenues. Each state has a General Fund which is derived mainly from sales and income taxes. Each state also receives some Federal Funds but it was not always possible to include these in the breakdown. The other two categories of funds are Self Supporting and Others. Self Supporting funds are those derived from fees levied directly on users of the services. Other funds were generally unexplained in the State Budgets or were largely private or corporate donations. For some states all funds other than the State General Fund and Federal Funds were included in Other Funds in the budget so further breakdown was not possible.

A second table is presented for each state which gives a general allocation of benefits from each program among livestock farmers or other farmers. Livestock farmers are assumed to be beef cattle producers and hog producers unless otherwise stated. Total program funds are then allocated as benefits to livestock farmers specifically, other farmers specifically, or all farmers in general. Programs which may benefit the farm sector are included under the heading of general programs.

(iii) Quantitative Analysis

The issue of agricultural support policies and subsidies is likely to be the central issue for the industry in the trade negotiations between the United States and Canada. Although the issue of non-tariff barriers is, in terms of the livestock industry, central to the ability of the Canadian industry to capitalize on the advantages which can arise from trade liberalization, it is the issue of subsidies which is going to be central in the negotiations. This is because, at the moment, there is a mood in the United States that most U.S. trading partners, including Canada, trade unfairly.

U.S. livestock producers are particularly sensitive to the issue, because to their mind they do not receive many direct top loading subsidies such as those received by Canadian farmers. Subsidies in the U.S. exist but they are far less direct than in Canada. Hence U.S. producers do not believe that they receive subsidies and are presented with product from Canada which has highly visible direct to product subsidies.

It is the perception which is important. The major problem for U.S. livestock producers is the relative value of the Canadian-U.S. exchange rate which has increasingly favoured Canadian exports to the U.S. This problem arises from U.S. problems of deficit financing at the federal level which is supported through a monitary policy which increases U.S. interest rates so that capital is invested at home rather than abroad and capital inflows are stimulated. This both reduces the supply of U.S. dollars on the world money markets and increases demand simultaneously. The result is a strong U.S. dollar which makes U.S. products expensive for foreigners to import and makes foreign products,

including Canadian livestock products, appealing for U.S. importers. As there has been a general weakening of Canadian demand for livestock products over the last decade (Kerr and Ulmer) increased exports to the U.S. have not led to an increase in Canadian prices. Basically falling Canadian demand has been replaced in part by U.S. exports. This represents a change in the traditional pattern of adjustment where changes in the value of the exchange rate led rather quickly to a Canada-U.S. livestock price convergence based on positive supply elasticities in both countries.

There are, of course, other reasons why Canadian product has made inroads in the U.S. market. For example in pork; declining U.S. swine production, changes in the location and some rationalization of the U.S. meat packing industry; proximity of Canadian hog/pork production to U.S. meat packers and consumer markets; and leaner and more desirable Canadian hog/pork products (Gilson, 1985).

It should be remembered that the Canadian subsidy programs such as ASA have been around for a long time and have not been objected to by those in the U.S. Many of the provincial programs have also been in existence for considerable periods. U.S. objections are related to their deteriorating competitive position resulting from the current monetary policy. In some sense the close attention to foreign subsidies is a "witch hunt" to find a means of relieving the pressures arising from the strong U.S. dollar. It may be worthwhile to quote some U.S. sources at length on this issue. The most comprehensive document to date on this question is the Interim Report to the President and the Congress of the National Commission on Agricultural Trade and Export

Policy released in March 1985. In its executive summary the Commission reports:

> "The recent appreciation of the value of the U.S. dollar in relation to other major currencies is seriously undermining the competitiveness of U.S. agriculture in the domestic and world markets. The Commission finds that the increase in the value of the dollar far outweighs many of the other factors involved in the current downturn in U.S. agricultural exports (our emphasis added). Although the Commission is as yet unprepared to make specific recommendations of a pragmatic nature to counter the impact of the dollar's rise on U.S. agriculture the Commission believes that agricultural interests are under-represented in the councils of government responsible for dictating fiscal and monetary policies of the United States. The Commission recommends:
>
> That Congress and the President give greater weight to agricultural trade interests in the formulation of fiscal and monetary policy, particularly if such policy directly results in an appreciation of the value of the dollar" (p. 6).

According to Carol A. Goodloe of the International Economics Division, Economic Research Service, United States Department of Agriculture, in the recent pork countervail case:

> "While U.S. producers focused their attention on Canada, imports of pork from Denmark have been increasing at a rapid rate. The steady increase in the value of the U.S. dollar against Canadian and EC currencies has encouraged surplus pork production to flow into the United States" (Goodloe, p. 22).

However, this is not where U.S. producers looked to attach blame for their poor markets. Again, according to Goodloe:

> "As a result of low returns U.S. hog inventories have fallen steadily since 1980, except for a slight upturn in 1983 following higher prices in 1982. As inventories declined there was a general expectation among U.S. producers that prices should respond accordingly, but costs remained above returns. Hog prices remained weak even as herds were being reduced, and farmers began looking for reasons why.
>
> One very obvious and direct reason was identified - live hog imports from Canada. Although Canadian pork exports to the U.S. had grown significantly in the early 1980's while U.S. exports to Canada had declined just as rapidly, the influx of live hogs was even more dramatic and visible to producers to the point of seeing truckloads of Canadian hogs unloaded at slaughter houses. The gradual widening in the balance of pork trade with Canada became a source of concern as farmers remembered as normal the atypical 1977-78 period when Canada was a net pork importer...

> The philosophical outlook of U.S. livestock producers may have been a factor as well. Hog producers receive no direct government support such as grain or dairy farmers receive, and view themselves as independent, market-oriented producers. As Canadian hogs began coming across the border in record numbers, U.S. producers began hearing about "subsidies" that their counterparts to the north were receiving. Even though the level of understanding of the exact nature or impact of Canadian programs may have been low, these government payments were perceived to be unfair and contributing to the large imports, and thus, lower prices" (our emphasis added) (pp. 21-22).

In general, U.S. producers feel that the policies of foreign governments led to unfair trade practices.

> "U.S. farmers in general have become increasingly aware of the impact of foreign policies and subsidies on U.S. agricultural exports - for example, the impact of EC export restitutions on U.S. grain exports. There has been increasing talk among U.S. producers and agribusiness about "leveling the playing field"; that is, countering what is perceived as unfair trading practices by foreign governments" (Goodloe, p. 21).

This sentiment is echoed by the National Commission on Agricultural Trade and Export Policy:

> "The United States should continue to negotiate a reduction in international barriers to free trade. However, policy in this regard must acknowledge the absence of international free markets for most agricultural commodities and products. The United States gains nothing by pursuing a goal of fair markets at the expense of U.S. farmers and businessmen, and without similar costs borne by competitor nations.
>
> An aggressive U.S. government program to counter unfair trade practices is necessary at this time. While the Commission is opposed in principle to the use of export subsidies under fair market conditions, it believes that an aggressive export restitution program is needed to meet unfair foreign competition on a case by case basis" (p. 35).

The concept of the "level playing field" is more correctly identified with the concept of "fair" rather than "free" trade. The U.S. recognizes that agricultural policies are a "fact of life" in the domestic political millieu. The U.S. is a signator to the General Agreement on Tariffs and Trade (GATT). The GATT observes that:

> Signatories recognize that subsidies other than export subsidies are widely used as important instruments for the promotion of social and economic policy objectives and do not intend to restrict the right of signatories to use such subsidies to achieve these and other important policy objectives which they consider desirable (GATT).

The major objection of the U.S. then is not the existence of subsidies but the unequal effect of subsidies when commodities are traded. In other words the subsidies paid to the farmers in countries with whom the U.S. trades should not exceed those received by U.S. farmers. Probably this does not mean that the benefits of policies have to be equalized on a cent by cent basis but that there must be some commonality to the level of support. It is probably unfortunate that the current free trade discussions will be conducted within an economic climate where U.S. producers are particularly sensitive to the levels of foreign subsidies. The U.S. also tends to be very egocentric in its approach to subsidy identification, tending to ignore its own levels of support while aggressively identifying, cataloguing and quantifying those of other ocuntries. This is probably only natural although it flies in the face of their much touted concept of "fair." It must also be made clear that much of the blame lies with the trading partners of the U.S., including Canada, who have not been as diligent in their identification, cataloguing and quantifying of the benefits of U.S. subsidies as have their U.S. counterparts.

Basically, in terms of negotiations, the U.S. will have a particular "shopping list" of Canadian programs which they will find unpalatable. Canada must have a similar list of U.S. programs with which to aggressively negotiate. The U.S. will have its "sacred cows" in terms of programs just like Canada. If Canada can forcefully illustrate that U.S. subsidies are of similar magnitudes to those in

Canada, then the issue of subsidies will become a moot point at the negotiations. This does not mean that the U.S. will not aggressively seek concessions but at least Canada would have a strong bargaining position from which to seek concessions from the U.S. That is the essence of a negotiation process.

In the livestock sector identification of U.S. subsidies is particularly difficult because they are indirect in nature. Still the beneficiaries of U.S. programs should be as closely as possible identified and the benefits quantified as best as possible. If the recent countervail case is any indication, rough magnitudes based on general assumptions should be sufficient to prove the point (Gilson, 1985).

U.S. legislation defines subsidy as the government provision to industry of:

(a) non-commercial capital, loans or loan guarantees;

(b) non-commercial or preferential rates or prices for goods or services;

(c) grants or forgiveness of funds to cover operating losses; or

(d) the assumption of any production related costs (Goodloe).

The U.S. has been very liberal in its interpretation of Canadian subsidies. If one uses an example from the recent pork countervail proceedings, again quoting from Gilson:

> "While it is not surprising that the U.S. Department of Commerce counted the benefits received under the federal and provincial price stabilization programs in its calculations of the total subsidy received by Canadian producers, it was not anticipated that the subsidy calculations would also include a number of "other" public programs. These "other programs" included such items as low interest loans to pork producers, government grants to pork processing plants, government support of the record of production performance program and the federal carcass grading programs" (Gilson, 1985. p. 8).

Using such a broad definition of subsidy would allow for the inclusion of most U.S. subsidies in any calculation of the "level playing field." It would appear that even the expenditures for research services and the services associated with the acquisition of knowledge (extension services) which are much more heavily funded in the U.S. than Canada would fall under the subsidy definition of "non-commercial or preferential rates or prices for goods or services." Further research and knowledge acquisition, in the absence of government programs would be production costs which would have to be assumed by producers. Hence, such services are in effect an "assumption of... production related costs." The payments of the conservation portion of the U.S. Agricultural Stabilization and Conservation Service, which are cost sharing would fall under the "non commercial capital" definition. The stabilization payment under the U.S. Agricultural Stabilization and Conservation Service are largely paid to grain farmers. They do affect the prices of livestock feed however. In those periods when grain is moving out of federally funded storage the increase in current supplies tend to reduce feed prices and lower the cost of production for livestock producers. It is a de facto bottom loading subsidy. The benefits received by livestock farmers from such programs would then fit within the U.S. subsidy definition of "non-commercial... prices for goods...."

At the state level there are a multitude of programs which would fit within the broad definitions used in the pork countervail cases. If Canadian R.O.P., grading assistance and similar programs can be included then programs such as brand inspection, animal health programs and livestock development funds run by individual states should be included as subsidies as well.

Of course, not all of the programs which provide farm support are targetted to particular commodity groups. Many payments are slated for all livestock, for example, and not explicitly broken out for beef, hogs, sheep and poultry. Hence to determine the distribution of benefits among commodities requires that some assumptions must be made explicit for each of the subsidies quantified below. Although the assumptions may not be correct it puts the onus on the defending nation to provide better information.

To be consistent with apparent U.S. methodology all of the subsidies are calculated on a dressed weight basis for carcass animals. This was the method used by the U.S. Department of Commerce in the pork countervail case (Gilson, 1985).

The detailed calculations on a state basis for those funds appearing in the budgets of the individual states are provided in the Appendix, Part C, to this report. The reference for the sources of funds for each individual state is from the individual state tables provided in the Appendix, Part B. From the state budgets only those programs which can be directly identified as subsidies have been included. In other words those programs which are self-financing have been omitted. In addition subsidies for programs which applied directly to non-beef and pork products were also eliminated, e.g., those earmarked directly for dairy or grain, etc. Hence, the programs included are those which provide for either hogs/pork or cattle/beef specifically, those programs provided for livestock in general and those programs which could apply to all farmers in the state.

For those programs which apply solely to hogs/pork and cattle/beef there is no problem to allocate the funds between the commodities. For those funds which are not directly earmarked for the commodities assumptions about the proportion of funds accruing to either hog or cattle producers had to be made. For those funds designated for livestock in general, these funds were allocated to the individual industries on the basis of the percentage of the value of total livestock sales which the value of sales of either cattle or hogs represented in the individual state. Livestock is defined as the outputs of the cattle, hog, lamb and poultry industries but not the dairy industry.

For those programs which were available to all farmers the budgeted funds were allocated to either the beef or pork industries based on the percentage which the sales of those commodities made up of total agricultural sales. This was done for each individual state.

The total benefit for each commodity for each state is summarized in Table 2. The figures were converted to cents per pound carcass weight so as to be consistent with the recent pork countervail calculations conducted by the U.S. Department of Commerce. The carcass based calculations caused some difficulty for a few states such as Nevada and Wyoming which have few slaughter facilities and are primarily suppliers of animal inputs rather than slaughter animals. Hence the livestock industry is much larger than the yearly slaughter. Hence the slaughter basis for calculation could not be used and these non-comparable bases are indicated by NCB.

The federal funds included here are only those which appear in the state budgets. They are not payment made under budgeted federal programs of the USDA and thus do not represent double counting. Separate calculations for direct U.S. expenditures for agriculture are also made.

TABLE 2: EFFECTS OF U.S. FEDERAL AND STATE BUDGETARY PROGRAMS

	Arizona		California		Colorado		Idaho		Illinois	
	Cattle	Hogs	Cattle	Hogs	Cattle	Hogs	Cattle	Hogs	Cattle	Hogs
% of total sales of Agric. products in state attributed to cattle/hogs	32.9	2.0	12.2	0.2	59.3	2.1	32.3	0.6	10.6	14.4
% of livestock sales attr. to cattle/hogs	69.7	4.2	35.2	0.7	83.3	2.9	67.4	1.2	34.8	47.3
Total lbs. carcass sold (1983 x 1000)	216,780	33,371	1,010,400	310.080	1,292,880	29,869	446,100	13,889	693,840	1,325,235
Total benefit - Animal productivity (x 1000) (ARS)	-	-	219.9	2.6	1,517.1	52.8	619.5	11.0	356.8	484.9
(1) ¢ benefit/lb. carcass	-	-	.013	.001	.117	.177	.139	.079	.051	.037
Total benefit-Soil & Water Cons.(ARS)	1,158.7	70.4	716.1	11.7	2,342.3	82.9	953.9	17.1	118.6	61.2
(2) ¢ benefit/lb. carcass	.534	.211	.071	.004	.181	.278	.214	.128	.017	.012
Total benefit-Proc., Stor., etc.(ARS)	-	-	1,435.1	23.5	-	-	-	-	1,470.2	1,997.3
(3) ¢ benefit/lb. carcass	-	-	.142	.008	-	-	-	-	.212	.151
Total benefit-Ag. Cons. Program (ASCS)	567.6	34.5	560.9	9.2	2,529.3	89.6	945.1	17.5	660.1	896.8
(4) ¢ benefit/lb. carcass	.262	.103	.056	.003	.196	.300	.212	.126	.095	.068
Total benefit-Emerg.Cons.Program (ASCS)	1,490.8	90.6	380.6	6.2	312.3	11.1	65.9	1.2	1.0	1.4
(5) ¢ benefit/lb. carcass	.688	.272	.038	.002	.024	.037	.015	.009	-	-
Total benefit-Emerg.Feed Program (ASCS)	46.7	2.8	-	-	-	-	-	-	-	-
(6) ¢ benefit/lb. carcass	.022	.008	-	-	-	-	-	-	-	-
A. Total benefits ¢/lb. (1) + (2) + (3) + (4) + (5) + (6)	1.506	.594	.320	.018	.518	.792	.580	.342	.375	.268
B. Total benefits-State & Fed. (budgets)	4.917	1.937	1.181	.068	.335	.515	1.219	.720	.611	.506
Total Benefits (A & B)	6.423	2.531	1.501	.086	.853	1.307	1.799	1.062	.986	.774

TABLE 2: EFFECTS OF U.S. FEDERAL AND STATE BUDGETARY PROGRAMS (CONTINUED)

	Iowa		Michigan		Minnesota		Montana		Nebraska	
	Cattle	Hogs	Cattle	Hogs	Cattle	Hogs	Cattle	Hogs	Cattle	Hogs
% of total sales of Agric. products in state attributed to cattle/hogs	25.4	25.9	11.4	7.1	14.3	13.5	43.3	2.1	50.3	10.7
% of livestock sales attr. to cattle/hogs	44.0	44.9	24.2	14.9	26.0	24.6	85.5	4.2	78.5	16.7
Total lbs. carcass sold (1983 x 1000)	1,977,780	3,642,692	321,900	892,296	698,880	984,895	59,460	60,197	3,042,660	786,522
Total benefit - Animal productivity (x 1000) (ARS)	5,523.4	5,636.3	421.9	259.8	6.9	6.5	754.1	37.0	5,415.4	152.1
(1) ¢ benefit/lb. carcass	.279	.155	.131	.029	-	-	NCB	.061	.178	.146
Total benefit-Soil & Water Cons.(ARS)	111.5	113.6	-	-	316.4	298.7	-	-	433.5	92.2
(2) ¢ benefit/lb. carcass	.006	.003	-	-	.045	.030	-	-	.014	.012
Total benefit-Proc., Stor., etc.(ARS)	26.9	27.4	6.5	4.0	52.5	49.6	-	-	-	-
(3) ¢ benefit/lb. carcass	.001	.001	.002	-	.008	.005	-	-	-	-
Total benefit-Ag. Cons. Program (ASCS)	1,801.7	1,837.2	448.9	279.6	868.8	820.2	1,894.9	91.9	2,125.4	452.1
(4) ¢ benefit/lb. carcass	.091	.050	.139	.031	.124	.083	NCB	.153	.070	.057
Total benefit-Emerg.Cons.Program (ASCS)	67.9	69.2	1.0	.6	-	-	-	-	186.4	46.1
(5) ¢ benefit/lb. carcass	.003	.002	-	-	-	-	-	-	.006	.006
Total benefit-Emerg.Feed Program (ASCS)	-	-	-	-	-	-	2.3	.1	-	-
(6) ¢ benefit/lb. carcass	-	-	-	-	-	-	.004	-	-	-
A. Total benefits ¢/lb. (1) + (2) + (3) + (4) + (5) + (6)	.380	.211	.272	.060	.177	.118	NCB	.214	.268	.221
B. Total benefits-State & Fed. (budgets)	1.454	.805	.770	.173	2.757	1.762	NCB	.523	.519	.426
Total Benefits (A & B)	1.834	1.016	1.042	.233	2.934	1.880	NCB	.737	.787	.647

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TABLE 2: EFFECTS OF U.S. FEDERAL AND STATE BUDGETARY PROGRAMS (CONCLUDED)

	Nevada		N. Dakota		S. Dakota		Utah		Nebraska		Wyoming	
	Cattle	Hogs	Cattle	Hogs	Cattle	Hogs	Cattle	Hogs	Cattle	Hogs	Cattle	Hogs
% of total sales of Agric. products in state attributed to cattle/hogs	47.0	0.8	15.5	1.9	42.9	12.6	32.5	0.9	20.9	0.4	66.0	0.9
% of livestock sales attr. to cattle/hogs	73.7	1.2	66.5	8.0	65.0	19.2	42.6	1.2	53.0	1.1	84.5	1.2
Total lbs. carcass sold (1983 x 1000)	3,720	561	95,400	11,934	409,440	511,581	155,040	33,082	558,960	57,477	7,980	1,547
Total benefit - Animal productivity (x 1000) (ARS)	-	-	1,007.9	121.3	-	-	340.2	9.6	790.4	16.4	-	-
(1) ¢ benefit/lb. carcass	-	-	1.056	1.017	-	-	.219	.029	.141	.028	-	-
Total benefit-Soil & Water Cons. (ARS)	-	-	250.0	30.6	-	-	17.2	.5	206.6	3.9	284.9	3.9
(2) ¢ benefit/lb. carcass	-	-	.262	.257	-	-	.011	.001	.037	.007	NCB	NCB
Total benefit-Proc., Stor., etc. (ARS)	-	-	-	-	-	-	13.6	.4	95.2	1.8	-	-
(3) ¢ benefit/lb. carcass	-	-	-	-	-	-	.009	.001	.017	.003	-	-
Total benefit-Ag. Cons. Program (ASCS)	360.7	6.1	594.6	72.9	1,003.6	294.7	1,213.6	33.6	841.3	16.1	1,056.8	14.4
(4) ¢ benefit/lb. carcass	NCB	NCB	.623	.611	.245	.058	.783	.102	.151	.028	NCB	NCB
Total benefit-Emerg.Cons. Program (ASCS)	148.2	2.5	-	-	67.6	19.9	429.2	11.9	6.5	.1	42.6	.6
(5) ¢ benefit/lb. carcass	NCB	NCB	-	-	.017	.004	.277	.036	.001	-	NCB	NCB
Total benefit-Emerg. Feed Program (ASCS)	-	-	-	-	-	-	-	-	-	-	-	-
(6) ¢ benefit/lb. carcass	-	-	-	-	-	-	-	-	-	-	-	-
A. Total benefits ¢/lb. (1)+(2)+(3)+(4)+(5)+(6)	NCB	NCB	1.941	1.885	.262	.062	1.299	.169	.347	.066	NCB	NCB
B. Total benefits-State & Fed.(budgets)	NCB	NCB	3.697	3.614	1.380	.307	3.696	.479	.748	.140	NCB	NCB
Total Benefits (A & B)	NCB	NCB	5.638	5.499	1.642	.369	4.995	.648	1.095	.206	NCB	NCB

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As can be seen the levels of support vary considerably from state to state. The state levels of support for hogs appear, in general, to be lower than for beef. As with Canadian provinces the levels of support in those states with smaller levels of production tend to be greater than in the large producing states.

In a similar fashion the direct expenditures for the U.S. Federal Government are also catalogued in Table 2. These are the expenditures from the U.S. ARS and appropriate expenditures from the U.S. ASCS. They do not include expenditures on grain subsidies. These will be dealt with below. As with the state expenditures of funds which were not explicitly allocated either to hogs or cattle. The same assumptions, by state, were made for federal funds as for state budgeted funds. Funds identified for livestock specifically were allocated according to the percentage of total livestock sales, within the state, attributed to either beef or pork. For those subsidies available to all farmers the funds were allocated according to the percentage of total agricultural sales, by state, attributed to either beef or pork.

The total dollar value of the subsidies are presented for each commodity by state and then they are converted to a per pound of carcass weight basis for consistency. The federal benefits in cents/pound are summed and presented in the line denoted A. To this is added the benefits calculated by state (see Appendix Part C). These are denoted B in the table. Finally the total benefits in cents/pound are presented; i.e., A + B.

The final programs to be considered are the grain stabilization programs of the USDA. These programs are particularly difficult to assess, in terms of their effects on livestock as they are indirect.

Still they affect revenues in the livestock sector through effects on the grain price. Studies conducted in the United States cannot agree on the net effect of these policies on the livestock sector and the estimated magnitudes of the effects vary considerably. For an excellent survey of the multitude of studies conducted in the U.S. one should refer to Todd.

Basically, the place to start is with the Canadian federal stabilization programs of the ASA. The Canadian ASA payments are primarily stabilization programs and through their payments increase the gross revenues of livestock producers. They are triggered when the price of the commodity falls below a set percentage of a moving average price. As such they are intermittent in nature. Payouts are only made when the market price falls below the trigger price. Hence the basic aspects of the policy are that they affect gross revenue and the payments are intermittent.

These two aspects are important when one wishes to compare the effects with those of U.S. programs. The gross revenue aspect is important because stabilization subsidies like ASA do not provide a guarantee of profitability. They seek to stabilize or enhance revenues. The U.S. chose to include these payments in their calculation of the recent pork countervail (Gilson, 1985). Hence it would seem that gross revenue enhancement is sufficient evidence of the effect of a government policy in the trade context. It would also appear that whether or not there is a significant supply response is not relevant to the determination of the effect of a policy on trade. This point is crucial to the discussion of U.S. policies which follows.

The intermittent nature of the program is also important when one wishes to compare the two policies within the context of trade. In those years when ASA does not make payouts it could not be included in countervail calculations and hence Canadian levels of subsidy would be considerably lower. When one puts this in a "fair" trade context, however, it presents a problem. The question to be asked is, what constitutes a "level playing field?"

When one is determining the level playing field should intermittent policies be included and how should they be treated? If the policies are not included in the definition and periods arise when payouts are being made, then presumably the payouts constitute "unfair" trade and would be countervailable. This does not seem to be within the spirit of the "level playing field."

If, on the other hand, the policies are included in the definition then they should be treated as if they were in effect at all times. As the levels of support vary from period to period this would lead to problems with determining the level of support.

In any case, if the trigger mechanisms are different in the two countries, at any given time the program in either country could be providing support when an intermittent program in the other country was not providing support and trade flows would be affected. There does not seem to be any simple way to address this problem and it will be a point of negotiation.

U.S. programs which affect the price of grain are numerous. Their effects on the livestock sector are varied, multifaceted, and indirect.

> "...the federal government's influence on livestock prices and the incomes of livestock producers has mostly been indirect,

> through programs that affect the supply and price of crops. Even so, the potential indirect effects on the livestock sector of the federal grain programs are numerous and include changes in the quantity and mix of livestock products produced; the average price of livestock as well as the relative prices of the several livestock products; the variability of livestock prices and quantities; the organization of livestock production; and the level and variability of producers' income and well-being.
>
> Determining the extent and even the direction of these effects is not easy, however, and the economists often disagree about them" (Todd, p. 1).

In addition, the so-called "grain policy" in the U.S. has been very difficult to assess because it has been evolving and applied with varying degrees of rigour. Again, according to Todd,

> "Studies of the effects of the grain programs have been hampered by the fact that the rules which governed postwar grain policy are only partially documented. This may seem odd since the legislative record is available and has been summarized and interpreted. However, the legislative record is inadequate in at least three ways. First the legislation governing the programs at any time generally was scheduled to expire within four years or less, so producers concerned with more distant policy actions would have been trying to fathom the underlying political process that would shape future legislation. Second, even the existing laws were sometimes subject to revision ahead of schedule, depending on the state of the agricultural economy. Finally, the laws in existence at any time were vague and delegated to the Department of Agriculture much administrative discretion for determining the exact policy actions to be taken. These features made policy actions more flexible but less predictable. They also make it almost impossible to say exactly what grain policy has been in the United States" (pp. 6-7).

Basically the U.S. program is a combination of deficiency payments, storage programs and acreage set aside incentives which are all tied together and interconnected with threshold prices and tied contracts (e.g., to qualify for storage loan assistance requires that farmers must participate in acreage set aside programs).

Basically they have two aspects which are similar to the Canadian ASA. First they are intermittent in effect as they are tied to market price conditions to determine their extent and direction of their

operation. They do however affect, indirectly, Gross Revenues to livestock producers - the same measure the ASA payments affect. As with ASA they are not directly concerned with ensuring profitability. As the U.S. chose to ignore the supply response aspect of ASA in their countervail calculations it would seem reasonable that the supply effects on livestock of U.S. grain policies can also be ignored when calculating the benefit. The programs would also seem to be within the U.S. definition of subsidy as they certainly provide livestock producers with feed grain prices which do not reflect market prices (e.g., prices which would exist in the absence of policy). Again to quote:

> "U.S. legislation defines a subsidy as the government provision to industry (public or private of: ...
>
> (b) non-commercial... prices for goods or services" (Goodloe, p. 17).

There are a large number of studies which provide estimates of the effect of grain policies on livestock farmers. For a more complete survey see (Todd) (Roberts and Heady) (Falwell and Shapouri) (Cochrane and Ryan) (Ray and Heady) (Johnson and Clayton).

One possible methodof assessment of the grain policies would be to suggest that in some years it provides a bottom loading subsidy on grain. This approach assumes that, in those years when grain is being moved out of storage, that grain prices are being depressed below free market prices and hence provide an implicit subsidy for livestock producers. Empirically this method is difficult to validate primarily because almost all U.S. studies estimate that grain prices have been increased rather than depressed. This primarily results because of the multitude of changes to grain policy which have attempted to prevent such price reductions. In other words the U.S. has been altering its grain policies to prevent the depression of prices which would result

from large quantities of grain moving out of storage. The latest example of such policy changes was the PIK Program which offset the reduction of storage with incentives to reduce production.

Ceteris paribus, however, eventually a storage policy must release accumulated stocks. Currently, the most important storage policy is the Farmer Owned Reserve Program (FORP). In its survey of the literature the authors found only one study which estimated the effect of FORP inventory reductions. Meyers and Ryan estimate that in 1981, the release of FORP stocks reduced corn prices by nine percent. Again this is an intermittent policy effect. The following calculations illustrate how this effect could be converted to a value in ¢/lb. carcass weight. They are, however, only illustrative and clearly would vary with the percentage reduction in grain prices. For cattle the calculations are as follows.

Rations for steers (finishing) vary considerably depending on the available feedstuffs. Common rations for on-farm finishing of animals contain silages which come from home-grown grains and may be practical for smaller scale operations. The bulk of silage makes it less applicable to large feeding operations who are more likely to opt for dry grain as the basis of their rations. Roughage is generally fed at from 20 - 25% of the ration with some supplements at from 5 - 10% of grain, either barley or corn could be used to make up the 65 - 75% of the diet remaining. If we assume steers gain at 2.5 lbs./day, going from 500 - 1000 lbs. with a feed conversion rate of 10 lbs. feed per lb. of gain then total feed required is:

$$\text{Total feed} = \frac{500 \text{ lbs.}}{2.5 \text{ lbs./day}} \times (2.5 \text{ lbs. gain/day} \times 10 \text{ lbs. feed/lb. gain})$$

$$= 200 \text{ days} \times 25 \text{ lbs. feed/day} = 5000 \text{ lbs. feed.}$$

If the ration contains 65% corn/barley then

5000 lbs. x 65% = 3250 lbs. grain or

5000 lbs. x 75% = 3750 lbs. grain

is required to finish a steer.

If the price of corn/barley drops by 1¢ a bushel that is equivalent to:

$$\frac{2204 \text{ lbs./ton}}{45 \text{ bushels/ton}} = 49 \text{ lbs./bushel (barley) (corn)*}$$

So 1¢/bushel = .02¢/lb. barley or corn

(*Corn has weight of 56 lbs./bushel so 1¢/bushel = .017 = .02¢.)

and a 1¢ drop using 65% grain = 3250 lbs. x .02¢/lb. = 65¢

75% grain = 3750 x .02¢ = 75¢ gain/head.

In terms of benefit/lb. of carcass:

$$75¢/\text{head} \div 540 \text{ lbs. carcass/head} = \frac{.139¢ \text{ benefit}}{\text{lb. carcass}}$$

$$65¢/\text{head} \div 540 \text{ lbs. carcass/head} = \frac{.120¢ \text{ benefit}}{\text{lb. carcass}}$$

For hogs the following calculations are used. Rations for growing and finishing swine from 50 lbs. to 200 lbs. finished weight has ~ 14% protein and D.E. 3300 kcal. Barley or corn could be fed at from 80 - 90% of the diet with protein/vitamin/mineral supplements making up the other 20 - 10%. Average gains for pigs during finishing period is 1.65 lbs./day on ~ 6 lbs. of feed/day. This means the total feed required is:

$$TF = \frac{(200 - 50) \text{ lbs. gain}}{1.65 \text{ lbs. gain/day}} \times 6 \text{ lbs. feed/day}$$

$$= 91 \times 6 = 546 \text{ lbs. of feed.}$$

At 80% grain = 546 x 80% = 436.8 lbs. grain or

90% grain = 546 x 90% = 491.4 lbs. grain.

At .02¢/lb. benefit for each 1¢/bushel drop in the price of corn or barley:

Benefit (80% grain) = 436.8 x .02¢ = 8.736¢/head

(90% grain) = 491.4 x .02¢ = 9.828¢/head.

Benefit on a per carcass basis: (144 lb./carcass)

8.736¢/head ÷ 144 lbs. carcass/head = .061¢/lb. carcass

9.828¢/head ÷ 144 lbs. carcass/head = .068¢/lb. carcass.

If one were to assume that at current prices the FORP was in a stock reduction stage then the following benefit would accrue to livestock farmers.

At $2.46/bushel of corn (based on the March 1986 futures price as of January 6, 1986) a price 9% below equilibrium would represent a 22¢/bushel reduction in the corn price. If one uses the mean value between the upper and lower bound effects for cattle (e.g., .139¢ + .120¢/2) of .1295 cents benefit per pound of carcass x 22¢ = 2.849¢ total benefit. For hogs following the same method (e.g., mean of benefits equals .061¢ + .068¢/2), each cent reduction in the corn price would yield .0645¢ benefit per pound, carcass weight. Hence the total benefit of a 22¢ reduction in the corn price would yield a total benefit of 1.419¢. As the grain markets are fairly well integrated in the U.S. the calculations could be applied to all states for illustrative purposes.

It must be admitted that the method used to calculate the benefits of the grain policies for livestock are not as methodologically tight as one would like. The intermittent nature of the programs and their indirect effects move the analysis into the hypothetical rather than the specific. Still the effects of U.S. grain policies will be

manifest in the livestock sector. This should be made explicitly clear in any level playing field negotiations. Formal analysis will, however, have to await the latest policy changes reflected in the latest U.S. Farm Bill. Again all previous grain policy calculations are not particularly relevant given this new evolution of U.S. grain policies. Still grain prices should not be ignored in any negotiations over livestock.

A summary of the calculated benefits (¢/lb. carcass) to cattle and hog producers from federal and state funded programs is provided in the Appendix (Part C). They are summed to provide a total effect of U.S. policies. These should be used with extreme caution. They are, to some extent, the adding of apples and oranges. Unfortunately, given the resources available to the contract group it was not possible to get data for consistent years for federal and state expenditures. The latest figures available for the federal expenditures were for 1984. State expenditures are presented on a fiscal basis and do not coincide with the federal expenditures. In addition, previous state budgets proved almost impossible to obtain. Hence most of them are for the current year. It is assumed that the expenditures do not change greatly from year to year and that the summation can at last be illustrative. This is unlike the intermittent grain policy expenditure whose "triggered" expenditures will vary considerably from year to year. Hence they are excluded. To reiterate these summaries should be taken only as illustrative. Again, it should be remembered that these should be received with "level playing field" discussion in mind and not the precision required for a countervail suit.

VII. Quantitative Effects of Barrier Reduction

(a) Methodology

In essence the methodology used will be the standard comparative statics approach. (See Section II(b) for a more complete theoretical discussion.) Changes in the level of Western Canadian exports are calculated for a number of scenarios. The specific scenarios to be examined are: (1) the removal of the tariff on beef; (2) the removal of the tariff on beef and border inspection charges on beef; (3) the removal of the tariff on beef, border inspection charges and reduction of transportation rates due to trucking deregulation for selected states; (4) removal of the tariff on pork; (5) removal of tariffs on pork and the removal of border inspection charges; (6) removal of tariffs on pork, removal of border inspection charges and reduction in transportation rates due to trucking deregulation for selected states; (7) an estimate of the effect of the reduction or elimination of Canadian health restrictions on the imports of feeder cattle.

To determine the changes in the net exports of meat products a combination of U.S. meat price flexibility estimates and Canadian supply elasticity assumptions was used. Although there have been a number of studies of the responsiveness of the U.S. meat market to changes in imports (Fierbairn and Rausser) (Houck) the most up to date estimates are reported by Ward. He presents a range of estimates for both beef and pork. This provides the ability to examine the sensitivity of the estimates. Our calculations are conducted for the high and low estimates of meat price flexibility as well as values at the mean.

In addition estimates were conducted for two scenarios based on different assumptions regarding Canadian supply elasticities for beef

and pork. The first set of estimates was conducted assuming that the supply of Western Canadian meat products are perfectly elastic in the long run. This is not unrealistic for the range of increased quantities of exports calculated. Given that there is considerable excess capacity both at the production and processing level in Western Canada (Kerr and Ulmer) increased quantities of output can probably obtained from existing capacity.

Alternatively, it can be assumed that the Western Canadian livestock industry has positive supply elasticities. In this scenario it is assumed that increased exports can only be achieved through increased prices paid to livestock producers. In general the longer the allowable adjustment period the greater the supply elasticity. We will use medium term supply elasticities supplied by Agriculture Canada (Cluff, personal communication). As medium term supply elasticities are for a shorter adjustment period than long term elasticities they should provide lower bound estimates for the change in Western Canadian exports as a result of various barrier reductions suggested in the scenarios. In addition to ensure that the estimates are conservative we will assume that the Western Canadian demand elasticities are perfectly inelastic. Given the small price effects this assumption is probably not unrealistic. As the infinite supply elasticity case provides the upper bound, the true values should be somewhere in between.

The alternative assumptions also have price ramifications. In the perfectly elastic Western Canadian supply elasticity cases all of the price adjustments resulting from barrier removal are assumed to take place in the U.S. In the positive Canadian price elasticity cases the price adjustments are assumed to take place partly in Canada and partly

in the U.S. (See Section II(g).) The net export and supply equations are solved simultaneously in these cases. The changes in total revenue for the Western Canadian industry for each of the scenarios are also presented.

The changes in net imports are calculated for each state and then summed to establish the total increase in exports from Western Canada. These calculations are undertaken in pounds and then translated back to animal units. It is assumed that all increases in imports are based on the export of entire carcass equivalents. In other words the option of exporting only some primal cuts (Gillis et al.) is not considered.

The impacts from meat imports are calculated from the following formula from Ward

$$PCRP_i = (NI_i/TDP_i) \times EPF;$$

or transforming

$$NI = \frac{(TDP_i)(PCRP_i)}{EPF_i}$$

where NI_i is net imports (imports less exports) of the i^{th} meat, TDP_i is the total production of the i^{th} meat in the importing area, $PCRP_i$ is the percentage change in the retail price of the i^{th} meat and EPF_i is the estimated price flexibility of the i^{th} meat for the year prior to the year for which the impact was estimated. NI_i and TDP_i are available for each commodity from USDA sources. The latest year for which complete data are available is 1983. All estimates are based on 1983. $PCRP_i$ was solved for explicitly using 1983 U.S. average retail prices. A new $PCRP_i$ was then calculated based on the reduction in import price which would result from the removal of the import barrier and the equation resolved for NI_i. The original NI_i was then subtracted from the

calculated NI_i to determine the change in net imports which would arise from the removal of the trade barrier.

Ward generated the price flexibility estimates, EPF_i's, using an OLS linear model based on annual data transformed to natural logarithms. Ward estimated price-dependent demand equations using two methods. His first method was based on demand equations estimated for sequential 20-year periods. This method attempts to capture structural changes in the demand for each meat which may have taken place over time.

The second set of estimations assumed no change in the demand relationships over time. One additional year's data was added to the base period for each subsequent estimation period. These two methods provide the high and low ranges for the calculations undertaken in this study. According to Ward the estimates differ from those of previous studies "but are within the range of previous estimates" (p. 6). Hence our estimates may be considered conservative. In addition we conducted estimates at the mean of the two values.

The positive Canadian supply elasticities utilized were supplied by Agriculture Canada (Cluff, personal communication). The elasticities used were .24 for beef and .54 for pork. The beef elasticity is calculated in liveweight, the pork elasticity in carcass weight. As the net import figures were in pounds of consumed product all calculations were converted to a standardized measure and then converted back when appropriate.

In all, then, for each barrier reduction a total of six estimates were undertaken, e.g., for each of the two Canadian elasticity assumptions a high, low and mean U.S. net import value was calculated.

(b) Effects of Barrier Reduction

(i) Beef

(1) Tariff Beef

Removal of the U.S. tariff is the most likely event which will result from a free trade agreement. The results, in terms of meat and animals are presented for first the perfectly elastic case and subsequently the .24 supply elasticity case in the following tables.

BEEF

REMOVAL OF TARIFF

State Change in Net Imports When Canadian Supply Elasticity is Perfectly Elastic

	HIGH		LOW		MEAN	
States	Pounds	# of Cows	Pounds	# of Cows	Pounds	# of Cows
Arizona	3,387,136	5,645	3,188,412	5,314	3,284,771	5,475
California	28,803,988	48,007	27,144,054	45,190	27,933,485	46,556
Colorado	3,600,499	6,001	3,389,257	5,649	3,491,686	5,819
Idaho	1,120,155	1,867	1,054,435	1,757	1,086,302	1,811
Illinois	13,148,487	21,914	12,377,063	20,628	12,751,118	21,252
Iowa	3,333,795	5,556	3,138,201	5,230	3,233,042	5,388
Michigan	10,374,770	17,291	9,766,080	16,277	10,061,227	16,769
Minnesota	4,747,324	7,912	4,468,798	7,448	4,603,852	7,673
Montana	933,463	1,556	878,696	1,464	905,252	1,509
Nebraska	1,840,255	3,067	1,732,287	2,887	1,784,639	2,974
Nevada	1,013,474	1,689	954,013	1,590	982,845	1,638
North Dakota	773,440	1,289	728,063	1,213	750,066	1,250
Oregon	3,040,421	5,067	2,862,039	4,770	2,948,535	4,914
South Dakota	800,111	1,334	753,168	1,255	775,930	1,293
Utah	1,840,255	3,067	1,732,287	2,887	1,784,639	2,974
Washington	4,934,017	8,223	4,644,537	7,741	4,784,903	7,975
Wyoming	586,748	978	552,323	921	569,015	948
Total Western States	84,278,338	140,463	79,363,713	132,221	81,731,307	136,218

BEEF

REMOVAL OF TARIFF

State Change in Net Imports When Canadian Supply Elasticity is .24

	HIGH		LOW		MEAN	
States	Pounds	# of Cows	Pounds	# of Cows	Pounds	# of Cows
Arizona	54,757	91	54,702	91	54,729	91
California	469,097	782	468,625	781	468,861	781
Colorado	58,206	97	58,147	97	58,177	97
Idaho	18,109	30	18,090	30	18,099	30
Illinois	212,560	354	212,346	354	212,453	354
Iowa	53,894	90	53,840	90	53,867	90
Michigan	167,719	280	167,551	279	167,635	279
Minnesota	76,746	128	76,668	128	76,707	128
Montana	15,090	25	15,075	25	15,083	25
Nebraska	29,750	50	29,720	50	29,735	50
Nevada	16,384	27	16,367	27	16,376	27
North Dakota	12,504	21	12,491	21	12,497	21
Oregon	49,152	82	49,102	82	49,127	82
South Dakota	12,935	22	12,922	22	12,928	22
Utah	29,750	50	29,720	50	29,735	50
Washington	79,764	133	79,683	133	79,724	133
Wyoming	9,485	16	9,476	16	9,481	16
Totals	1,365,900	2,277	1,364,525	2,274	1,365,213	2,275

(2) Tariff on Beef Plus Border Inspection Charges

The border inspection and its subsequent charge would seem to be a non-tariff barrier which it might be desirable to remove. For example in 1983 some 2,600,000 lbs. of manufacturing beef and 122,815 lbs. of carcasses and cuts were refused entry or condemned by U.S. authorities. In addition the cost of inspections is approximately .045¢ per lb. (Gillis et al.). As the produce must be certified as fit by Canadian authorities before shipment to the U.S. the border inspection seems redundant. The inspection charge represents a barrier to the movement of the product which is, at the moment, 25% of the value of the tariff. Further, this barrier is open to future abuse as it could be arbitrarily raised to offset the tariff reduction or other barrier reductions. The results of these scenarios for both the perfectly elastic Canadian supply case and the positive supply elasticity case are presented in the following tables. They can be compared to the case of only tariff removal in the previous section.

BEEF

REMOVAL OF TARIFF AND BORDER INSPECTION CHARGES

State Change in Net Imports When Canadian Supply Elasticity is Perfectly Elastic

	HIGH		LOW		MEAN	
States	Pounds	# of Cows	Pounds	# of Cows	Pounds	# of Cows
Arizona	4,203,313	7,006	3,956,704	6,595	4,076,282	6,794
California	35,744,709	59,575	33,647,561	56,079	34,664,445	57,774
Colorado	4,468,089	7,447	4,205,945	7,010	4,333,056	7,222
Idaho	1,390,072	2,317	1,308,516	2,181	1,348,062	2,247
Illinois	16,316,797	27,195	15,359,488	25,599	15,823,677	26,373
Iowa	4,137,119	6,895	3,894,394	6,491	4,012,089	6,687
Michigan	12,874,714	21,458	12,119,353	20,199	12,485,620	20,809
Minnesota	5,891,258	9,819	5,545,617	9,243	5,713,214	9,522
Montana	1,158,393	1,931	1,090,430	1,817	1,123,385	1,872
Nebraska	2,283,690	3,806	2,149,705	3,583	2,214,673	3,691
Nevada	1,257,684	2,096	1,183,896	1,973	1,219,675	2,033
North Dakota	959,812	1,600	903,499	1,506	930,805	1,551
Oregon	3,773,053	6,288	3,551,687	5,919	3,659,025	6,098
South Dakota	992,909	1,655	934,654	1,558	962,901	1,605
Utah	2,283,690	3,806	2,149,705	3,583	2,214,673	3,691
Washington	6,122,936	10,205	5,763,703	9,606	5,937,891	9,896
Wyoming	728,133	1,214	685,413	1,142	706,128	1,177
Total Western States	104,586,371	174,313	98,450,270	164,084	101,425,601	169,041

BEEF

REMOVAL OF TARIFF AND BORDER INSPECTION CHARGES

State Change in Net Imports When Canadian Supply Elasticity is 0.24

	HIGH		LOW		MEAN	
States	Pounds	# of Cows	Pounds	# of Cows	Pounds	# of Cows
Arizona	67,951	113	67,883	113	67,917	113
California	582,132	970	581,547	969	581,839	970
Colorado	72,232	120	72,159	120	72,195	120
Idaho	22,471	37	22,449	37	22,461	37
Illinois	263,779	440	263,513	439	263,646	439
Iowa	66,881	111	66,814	111	66,847	111
Michigan	208,134	347	207,924	347	208,029	347
Minnesota	95,239	159	95,143	159	95,191	159
Montana	18,727	31	18,708	31	18,717	31
Nebraska	36,918	62	36,881	61	36,900	61
Nevada	20,332	34	20,311	34	20,322	34
North Dakota	15,516	26	15,501	26	15,509	26
Oregon	60,995	102	60,934	102	60,965	102
South Dakota	16,051	27	16,035	27	16,043	27
Utah	36,918	62	36,881	61	36,900	61
Washington	98,984	165	98,884	165	98,934	165
Wyoming	11,771	20	11,759	20	11,765	20
Total Western States	1,695,033	2,825	1,693,327	2,822	1,694,179	2,824

(3) Tariff Beef Plus Border Inspection Charges Plus Transportation Deregulation

As suggested above, trucking regulations in Canada, and to a lesser extent in the U.S., may prevent the full realization of the benefits of trade. Removal of backhaul restrictions could lower the costs of transportation to the U.S. and hence reduce the landed cost of Canadian beef.

To obtain estimates of the cost differential between restricted backhaul and unrestricted backhaul a number of trucking firms in Winnipeg and Calgary engaged in the transport of meat were contacted. They were asked for the rate differential under the two conditions to select U.S. destinations. From this distance related ratios were developed and applied to transportation charges to meat deficit and current importing states. These were calculated for representative destinations in various states, e.g., Seattle in Washington and Portland in Oregon. The estimates for the various scenarios are presented in the following tables and can be compared to the estimates in the previous section for the individual states.

BEEF

REMOVAL OF TARIFF, BORDER INSPECTION CHARGES AND TRANSPORTATION REGULATION

State Change in Net Imports When Canadian Supply Elasticity is Perfectly Elastic

	HIGH		LOW		MEAN	
States	Pounds	# of Cows	Pounds	# of Cows	Pounds	# of Cows
California	44,400,044	74,000	41,795,087	69,658	43,058,203	71,764
Illinois	18,693,030	31,155	17,596,308	29,327	18,128,097	30,213
Michigan	14,999,668	24,999	14,119,635	23,533	14,546,353	24,244
Oregon	4,432,421	7,387	4,172,370	6,954	4,298,466	7,164
Utah	2,682,781	4,471	2,525,382	4,471	2,601,703	4,336
Washington	7,014,626	11,691	6,603,077	11,005	6,802,633	11,338

BEEF

REMOVAL OF TARIFF, BORDER INSPECTION CHARGES AND TRANSPORTATION REGULATION

State Change in Net Imports When Canadian Supply Elasticity is .24

	HIGH		LOW		MEAN	
States	Pounds	# of Cows	Pounds	# of Cows	Pounds	# of Cows
California	717,775	1,196	717,052	1,195	717,414	1,196
Illinois	302,193	504	301,889	503	302,040	503
Michigan	242,485	404	242,242	404	242,387	404
Oregon	71,655	119	71,583	119	71,619	119
Utah	43,370	72	43,326	72	43,348	72
Washington	113,399	189	113,285	189	113,342	189

(ii) Pork

(1) Tariff Pork

The estimates for the changes in net imports which would result from the removal of the tariff on pork are presented in the following tables. They are presented first for the case where the Canadian supply is assumed perfectly elastic. They are subsequently presented for the case where the Canadian supply elasticity is assumed at .54.

PORK

REMOVAL OF TARIFF

State Change in Net Imports When Canadian Supply Elasticity is Perfectly Elastic

	HIGH		LOW		MEAN	
States	Pounds	# of Hogs	Pounds	# of Hogs	Pounds	# of Hogs
Arizona	1,209,816	7,117	1,140,230	6,707	1,173,993	6,906
California	10,293,036	60,547	9,701,005	57,065	9,988,256	58,754
Colorado	1,286,630	7,568	1,212,626	7,133	1,248,532	7,344
Idaho	403,272	2,372	380,077	2,236	391,331	2,302
Illinois	4,695,238	27,619	4,425,179	26,030	4,640,066	27,295
Iowa	1,190,612	7,004	1,122,131	6,601	1,155,358	6,796
Michigan	3,706,261	21,802	3,493,086	20,548	3,596,517	21,156
Minnesota	1,699,503	9,997	1,601,752	9,422	1,649,180	9,701
Montana	336,060	1,977	316,731	1,863	326,109	1,918
Nebraska	652,916	3,841	615,362	3,620	633,583	3,727
Nevada	364,865	2,146	343,879	2,023	354,061	2,083
North Dakota	278,450	1,638	262,434	1,544	270,205	1,589
Oregon	1,084,994	6,382	1,022,587	6,015	1,052,866	6,193
South Dakota	288,051	1,694	271,483	1,597	279,522	1,644
Utah	662,518	3,897	624,412	3,673	642,901	3,872
Washington	1,766,715	10,392	1,665,098	9,795	1,714,402	10,085
Wyoming	211,238	1,243	199,088	1,171	204,983	1,206
Total Western States	30,130,175	177,236	28,397,160	167,043	29,321,865	172,571

PORK

REMOVAL OF TARIFF

State Change in Net Imports When Canadian Supply Elasticity is .54

	HIGH		LOW		MEAN	
States	Pounds	# of Hogs	Pounds	# of Hogs	Pounds	# of Hogs
Arizona	85,262	495	84,899	492	85,081	494
California	725,400	4,208	722,315	4,190	723,865	4,199
Colorado	90,675	526	90,289	524	90,483	525
Idaho	28,421	165	28,300	164	28,360	165
Illinois	330,896	1,919	329,489	1,911	330,196	1,915
Iowa	83,908	487	83,551	485	83,731	486
Michigan	261,198	1,515	260,087	1,509	260,645	1,512
Minnesota	119,772	695	119,263	692	119,519	693
Montana	23,684	137	23,583	137	23,634	137
Nebraska	46,014	267	45,818	266	45,917	266
Nevada	25,714	149	25,604	149	25,659	149
North Dakota	19,624	114	19,540	113	19,582	114
Oregon	76,465	444	76,140	442	76,303	443
South Dakota	20,300	118	20,214	117	20,257	118
Utah	46,691	271	46,492	270	46,592	270
Washington	124,509	722	123,979	719	124,245	721
Wyoming	14,887	86	14,824	86	14,855	86
Totals	2,123,419	12,317	2,114,388	12,264	2,118,925	12,291

(2) Tariff Pork Plus Border Inspection Charges

The estimates for the removal of both the tariff and border inspection charges for pork are presented in the following tables. They are presented first for the case where the Canadian supply elasticity is assumed perfectly elastic and subsequently for the case where the supply elasticity is assumed to equal .54.

PORK

REMOVAL OF TARIFF AND BORDER INSPECTION CHARGES

State Change in Net Imports When Canadian Supply Elasticity is Perfectly Elastic

	HIGH		LOW		MEAN	
States	Pounds	# of Hogs	Pounds	# of Hogs	Pounds	# of Hogs
Arizona	1,742,955	10,253	1,642,700	9,663	1,691,336	9,949
California	14,828,951	87,229	13,975,986	82,212	14,389,778	84,646
Colorado	1,853,619	10,904	1,746,998	10,276	1,798,722	10,581
Idaho	580,985	3,418	547,567	3,221	563,779	3,316
Illinois	6,764,326	39,790	6,375,240	37,501	6,563,994	38,612
Iowa	1,715,289	10,090	1,616,625	9,510	1,664,498	9,791
Michigan	5,339,529	31,409	5,032,398	29,602	5,181,394	30,479
Minnesota	2,448,437	14,403	2,307,602	13,574	2,375,924	13,976
Montana	484,154	2,848	456,306	2,684	469,816	2,764
Nebraska	940,642	5,533	886,536	5,215	912,784	5,369
Nevada	525,653	3,092	495,417	2,914	510,085	3,001
North Dakota	401,156	2,360	378,082	2,224	389,276	2,290
Oregon	1,563,126	9,195	1,473,215	8,666	1,516,833	8,923
South Dakota	414,989	2,441	391,119	2,301	402,699	2,369
Utah	954,475	5,615	899,574	5,292	926,208	5,448
Washington	2,545,268	14,972	2,398,863	14,111	2,469,887	14,529
Wyoming	304,326	1,790	286,821	1,687	295,313	1,737
Total Western States	43,407,879	255,340	40,911,047	240,653	42,122,315	247,778

PORK

REMOVAL OF TARIFF AND BORDER INSPECTION CHARGES

State Change in Net Imports When Canadian Supply Elasticity is .54

	HIGH		LOW		MEAN	
States	Pounds	# of Hogs	Pounds	# of Hogs	Pounds	# of Hogs
Arizona	122,838	713	122,312	709	122,574	711
California	1,045,099	6,062	1,040,623	6,036	1,042,856	6,049
Colorado	130,637	758	130,078	755	130,357	756
Idaho	40,946	238	40,771	236	40,858	237
Illinois	476,729	2,765	474,687	2,753	475,706	2,759
Iowa	120,888	701	120,371	698	120,629	700
Michigan	376,314	2,183	374,702	2,173	375,506	2,178
Minnesota	172,558	1,001	171,819	997	172,188	999
Montana	34,122	198	33,976	197	34,048	197
Nebraska	66,294	385	66,010	383	66,151	384
Nevada	37,046	215	36,888	214	36,967	214
North Dakota	28,272	164	28,151	163	28,212	164
Oregon	110,164	639	109,693	636	109,928	638
South Dakota	29,247	170	29,122	169	29,184	169
Utah	67,268	390	66,980	389	67,124	389
Washington	179,383	1,041	178,614	1,036	178,998	1,038
Wyoming	21,448	124	21,356	124	21,402	124
Totals	3,059,253	17,745	3,046,152	17,669	3,052,688	17,707

(3) Tariff Pork Plus Border Inspection Charges Plus Transportation Deregulation

The estimates for the various scenarios for representative states are presented in the following tables.

PORK

REMOVAL OF TARIFF, BORDER INSPECTION CHARGES AND TRANSPORTATION REGULATIONS

State Change in Net Imports When Canadian Supply Elasticity is Perfectly Elastic

	HIGH		LOW		MEAN	
States	Pounds	# of Hogs	Pounds	# of Hogs	Pounds	# of Hogs
California	22,156,197	128,516	20,881,824	121,124	21,500,143	124,711
Colorado	2,660,488	15,432	2,507,463	14,544	2,581,710	14,975
Idaho	724,522	4,203	682,850	3,961	703,069	4,078
North Dakota	500,266	2,902	471,491	2,735	485,452	2,816
Oregon	2,022,869	11,734	1,906,519	11,059	1,962,971	11,386
Utah	1,235,203	7,165	1,164,157	6,753	1,198,629	6,953
Washington	3,174,099	18,411	2,991,532	17,352	3,080,112	17,866

PORK

REMOVAL OF TARIFF, BORDER INSPECTION CHARGES AND TRANSPORTATION REGULATIONS

State Change in Net Imports When Canadian Supply Elasticity is .54

	HIGH		LOW		MEAN	
States	Pounds	# of Hogs	Pounds	# of Hogs	Pounds	# of Hogs
California	1,463,138	8,487	1,456,872	8,451	1,459,998	8,467
Colorado	187,502	1,088	186,700	1,083	187,101	1,085
Idaho	51,062	296	50,843	295	50,952	296
North Dakota	35,257	205	35,106	204	35,182	204
Oregon	142,566	827	141,955	823	142,260	825
Utah	87,053	505	86,681	503	86,867	504
Washington	223,701	1,298	222,743	1,292	223,221	1,295

(c) Discussion

Clearly the changes in quantities imported depend to a large degree on the assumptions regarding the Canadian elasticity of supply for beef and hogs. The effect on gross revenues in the industries is however less clear. If the assumption of perfectly elastic supply is used then the barrier reductions lead only to an increase in the quantity supplied in Canada and no change in price. Thus the estimated change in quantity can be multiplied by the existing market price to calculate the change in gross revenue from the reduction in trade barriers. On the other hand if the positive supply elasticity assumption is used then, although the change in quantity is reduced, there is assumed a general increase in price which would apply to both all before change production as well as the incremental amounts of production arising from increased exports. These calculations are presented for all of the scenarios, both regarding the U.S. Estimated Price Flexibility EPF coefficients and the supply elasticities in Western Canada, in the following tables.

BEEF

CHANGE IN GROSS REVENUE

WESTERN CANADA

	Canadian E_S = Perfectly Elastic		Canadian E_S = .24	
U.S. EPF	Tariff	Tariff & Border Inspection	Tariff	Tariff & Border Inspection
High	$111,246,000	$138,055,000	$26,030,000	$31,979,000
Low	$104,719,000	$129,954,000	$26,028,000	$31,976,000
Mean	$107,884,000	$133,881,000	$26,029,000	$31,978,000

PORK

CHANGE IN GROSS REVENUE

WESTERN CANADA

	Canadian E_S = Perfectly Elastic		Canadian E_S = .54	
U.S. EPF	Tariff	Tariff & Border Inspection	Tariff	Tariff & Border Inspection
High	$20,789,000	$29,951,000	$3,901,000	$5,492,000
Low	$19,594,000	$28,228,000	$3,894,000	$5,483,000
Mean	$20,242,578	$29,064,000	$3,972,000	$5,488,000

As can be seen, for both commodities there would be a greater increase in gross revenues if the perfectly elastic supply assumption is used. The estimates of the increase in gross revenues, to the Western livestock industries if only the tariff is removed range from a low of 1.6% (low EPF, positive supply elasticity case) to a high of 7% (high EPF, infinite supply elasticity case) for beef in 1983 and a low of 1% (low EPF, positive supply elasticity case) to a high of 4.9% (high EPF, infinite supply elasticity case) for pork in 1983. These rise to 1.3% and 7% in pork and 2% and 8.7% in beef if both the tariff and the border inspection charges were removed.

The assumptions are particularly important for the processing industry. If the positive supply elasticity case is closer to the true scenario then there will be very little increase in activity as exports do not increase significantly although revenues would increase slightly. If the infinite price elasticity case is correct then the increase in exports would mean that much of the existing excess capacity could be utilized. If the average cost curves of existing facilities are downward sloping in quantity then profitability should increase. Depending on the geographic distribution of exports, there may be some investment in new plant and equipment required to realize the potential increase in exports. For example, it would appear that approximately 45% of the change in net imports of beef would take place in the four Westernmost states, California, Oregon, Washington and Idaho. This would suggest increased processing facilities in Alberta.

Crucial to the assumption of increased investment in processing facilities in Canada would be the inclusion of a long term non-abrogation clause in any free trade agreement. If the treaty could

be easily abrogated or if its duration was for only a few years then there would be considerable risk involved in increasing Canadian capacity based on exports. If a firm built its plant in Canada and the treaty was abrogated then the plant would have a maximum market area in Canada of 25 million people. On the other hand if the plant were built in the U.S. to process Canadian cattle then, an abrogation of the treaty the U.S. market in excess of 200 million people would still be accessible. Hence without a strong non-abrogation clause most new facilities would rationally be built in the United States with the resulting loss of value-added and employment for Canada. Whether or not the processing facilities were built on one side of the border or the other would have little effect on producers.

Clearly the estimates presented provide only reasonable bounds for the expected effects of free trade. It should be remembered, these are only the quantitative estimates of the changes which would be likely to take place under existing market conditions and channels of market access. The absolute values of the estimates are extremely sensitive to the exchange rate. If additional non-tariff barriers could be reduced and better market access guaranteed then, over time the estimates provided could be perceived as only the most conservative of cases.

(d) Reduction or Removal of Canadian Health Regulations Pertaining to the Importation of Live Animals

All of the above analysis has been conducted under the assumption that there would be no change in the procedures required of those who wish to export live beef animals to Canada. The analysis has also assumed that the removal of the extremely small tariff on live animals would have no significant effect. As suggested above the procedures required to test for blue-tongue and anaplasmosis provide an effective

barrier to the importation of feeder cattle. The primary market which is deficient in supplies of feeder cattle is Ontario and Quebec.

The figure on the following page illustrates the dynamics of the feeder cattle markets in Canada for 1984. Western Canada is a surplus producer while Central Canada is a deficit area. Approximately 80% of feeder cattle which originate in Western Canada are retained in Western Canada and fed out. Virtually all of the remainder, 20%, are moved to markets in Central Canada. In 1984 approximately .5% of feeders originating in Western Canada were moved to the U.S., approximately .2% to the Pacific Northwest and .3% into the U.S. Midwest.

The Central Canadian cattle feeding industry is supplied from three sources: animals bred in Central Canada, animals purchased in Western Canada and animals originating in the U.S. Approximately 55% of Central Canadian requirements originate in Central Canada. Forty-four percent of the supply is sourced in Western Canada leaving approximately 1% which comes from the U.S. The question which arises is, how would these trading patterns be altered if Canadian health restrictions on the import of feeder cattle were relaxed or abandoned?

To effectively answer this question one must first examine the Canadian market itself. Although Eastern Canadian feedlots source cattle in all Western provinces including British Columbia, the major supply point which is nearest to Central Canada is Saskatchewan. Table VII (d) 1 presents average monthly prices in cwt for feeder steers 600-700 lbs. sourced in Saskatchewan for the years 1984 and 1985. To this must be added the transportation charges for moving animals to Ontario (Cattlemen, October 1985, p. 16). This gives the landed price in Southern Ontario. This must then be compared with the actual Ontario

FEEDER CATTLE MOVEMENT 1984

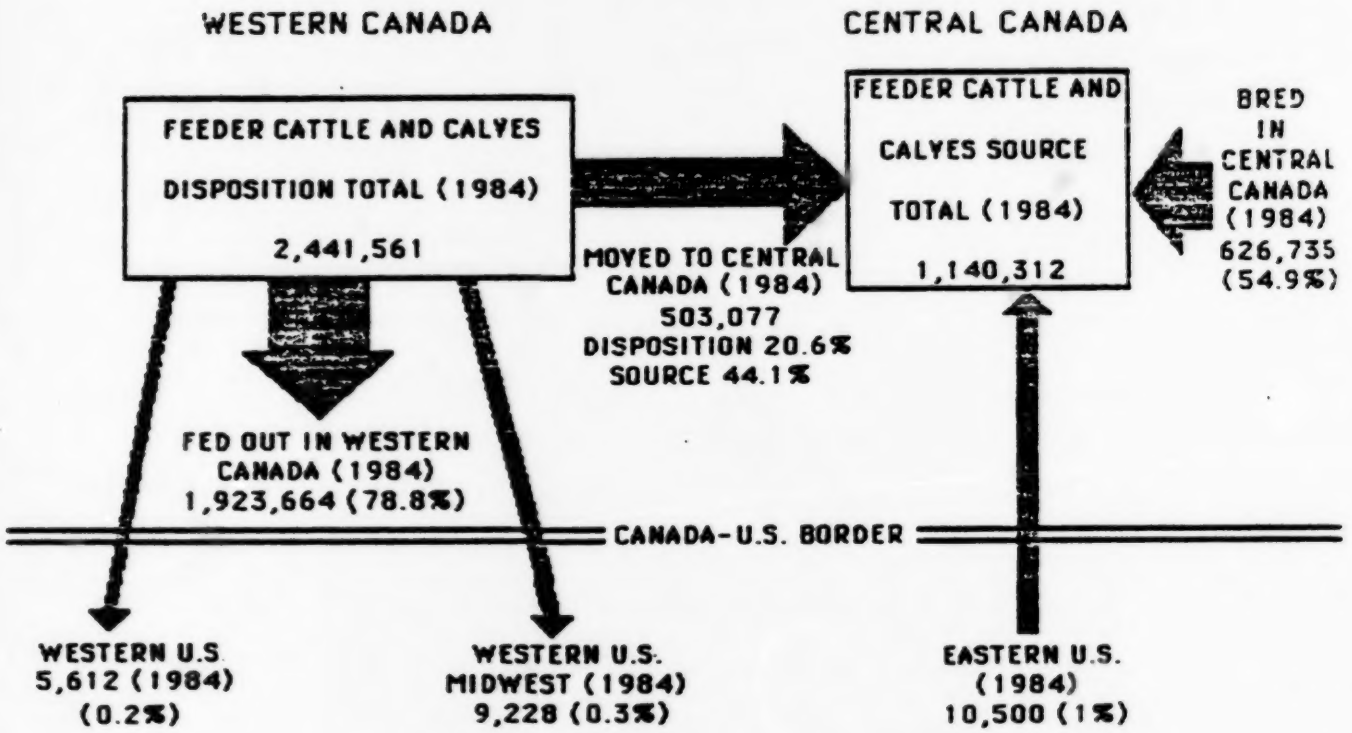

WESTERN CANADA
CENTRAL CANADA
FEEDER CATTLE AND CALVES DISPOSITION TOTAL (1984) 2,441,561
FEEDER CATTLE AND CALVES SOURCE TOTAL (1984) 1,140,312
BRED IN CENTRAL CANADA (1984) 626,735 (54.9%)
MOVED TO CENTRAL CANADA (1984) 503,077 DISPOSITION 20.6% SOURCE 44.1%
FED OUT IN WESTERN CANADA (1984) 1,923,664 (78.8%)
CANADA-U.S. BORDER
WESTERN U.S. 5,612 (1984) (0.2%)
WESTERN U.S. MIDWEST (1984) 9,228 (0.3%)
EASTERN U.S. (1984) 10,500 (1%)

TABLE VII(d)1

PRICES SOUTHERN SASKATCHEWAN FEEDER STEERS 600-700 LBS
LANDED IN SOUTHERN ONTARIO

		PRICES cwt SOUTH SASKATCHEWAN	PLUS TRANSPORTATION	LANDED ONTARIO PRICE	ACTUAL ONTARIO PRICE	PRICE DIFFERENCE
1984	J	84.00	8.00	92.00	82.33	9.67
	F	83.00	8.00	91.00	83.89	7.11
	M	84.05	8.00	92.05	84.17	7.88
	A	80.75	8.00	88.75	85.06	3.69
	M	79.75	8.00	87.75	83.71	4.04
	J	79.25	8.00	87.25	85.30	1.95
	J	80.25	8.00	88.25	84.71	3.54
	A	80.00	8.00	88.00	83.54	4.46
	S	79.30	8.00	87.30	83.44	3.86
	O	84.25	8.00	92.25	83.46	8.79
	N	83.00	8.00	91.00	83.81	7.19
	D	85.25	8.00	93.25	86.44	6.81
1985	J	85.05	8.00	93.05	86.86	6.19
	F	84.75	8.00	92.75	85.26	7.49
	M	85.30	8.00	93.30	86.61	6.69
	A	85.00	8.00	93.00	86.67	6.33
	M	86.38	8.00	94.38	86.68	7.70
	J	87.00	8.00	95.00	86.65	8.35
	J	81.00	8.00	89.00	82.57	6.43
	A	78.63	8.00	86.63	78.80	7.83
	S	81.80	8.00	89.80	81.71	8.09
	O	83.75	8.00	91.75	83.53	8.22
	N	83.00	8.00	91.00	82.19	8.81
	D	84.75	8.00	92.75	84.59	8.16

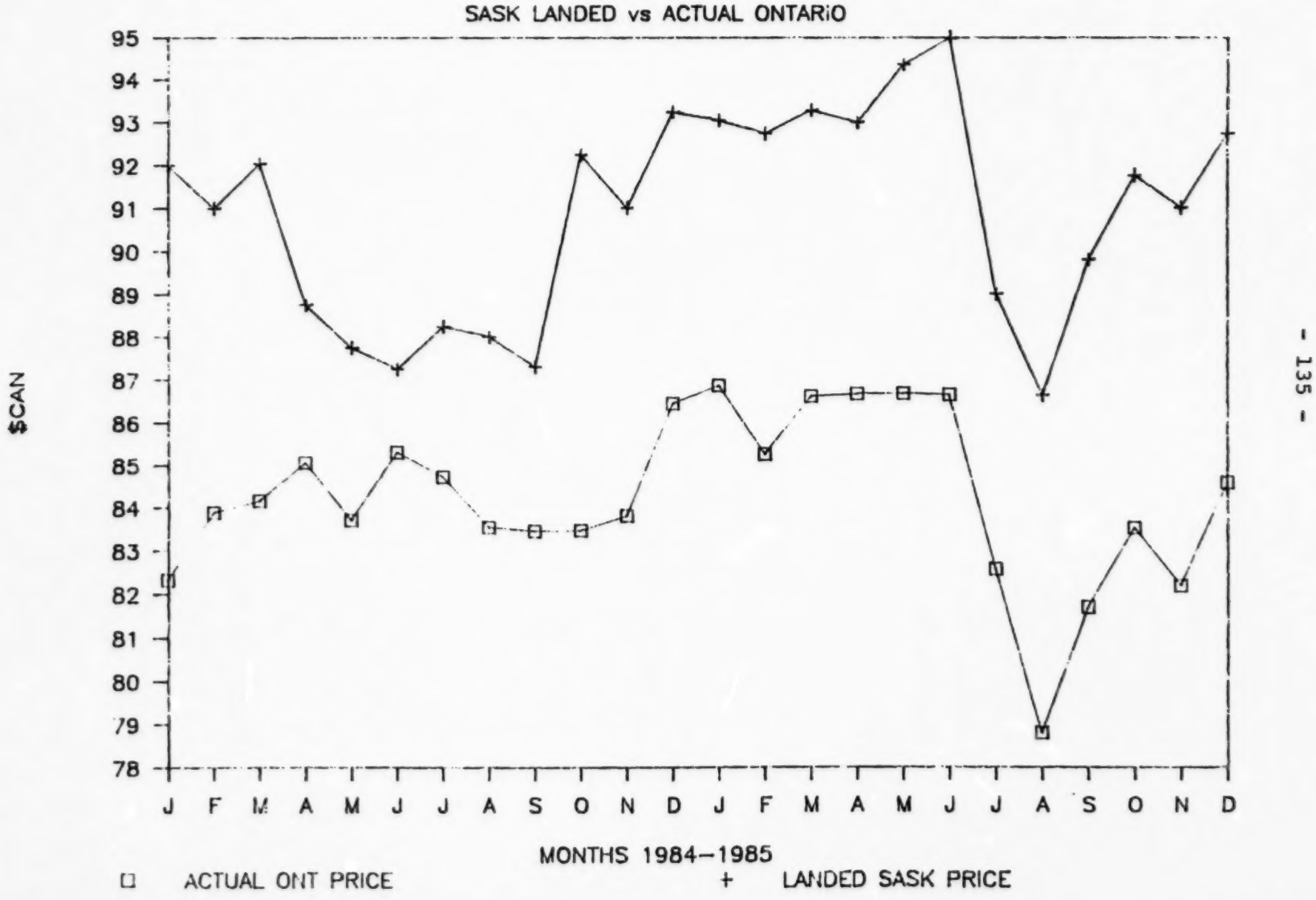
feeder cattle price (based in Toronto). As can be seen there is a consistent price differential between cattle sourced in Western Canada and those sourced in Central Canada although that differential varies from month to month. Clearly this presents an anomaly.

One would expect that there should be a market price convergence. In other words prices in the markets should be more closely aligned. Central Canadian feedlot operators should bid more for cattle sourced in Central Canada increasing their price and less for cattle in Western Canada reducing their price so that the prices would become more closely aligned. Obviously such convergence does not take place.

This suggests that the two commodities are not directly comparable. Industry sources suggest that the apparent anomaly can be explained by a quality differential. Feeders sourced from Western Canada are perceived as being of higher quality and hence receive a price premium. For 1984-1985 the average price differential was $6.64/cwt. Industry contacts in Western Canada suggested that this might be too conservative. They suggested $10.00/cwt as Central Canadian buyers tend to select those feeders of the highest quality so that the prices they pay tend to be in the high range so that average Western Canadian prices may be too low. In any case the figures presented tend to be on the conservative side. This suggests that direct comparisons between the landed price of Western sourced feeders and U.S. sourced feeders is naive. Figure VII (d) 1 provides a comparison of the landed price of Western sourced feeders and the Souther Ontario price.

Instead the correct comparison is between the Southern Ontario price and the price of U.S. sourced cattle. Of course this assumes that

FIGURE VII(d)1



no premium would be paid for U.S. sourced cattle. This assumption would appear to be correct according to discussions with industry. In fact U.S. sourced cattle might even carry a slight quality discount. This discount would arise because the breeding of U.S. cattle is aimed at supplying cattle which will conform to the U.S. grading standard. As the U.S. grading standard gives a premium to cattle with greater fat content there has been less "exotic" germ plasm introduced to U.S. breeding stock. Hence U.S. feeders tend to exhibit less lean finishing ability than most Canadian feeders.

Although there are some small supply sources close to the Canadian border, the closest major U.S. source of supply is likely to be the market area in and around Kentucky. The few U.S. feeder cattle which currently move to Southern Ontario have been sourced in Kentucky. The Kentucky market is approximately 600 miles from Toronto. Trucking costs are less than $3.00/cwt.

Table VII (d) 2 presents a comparison of the Kentucky and Southern Ontario feeder steer (600-700 lbs.) markets for 1984 and 1985. The prices presented are the average monthly price in Kentucky. These are converted to Canadian dollar equivalents using the average monthly exchange rate (Bank of Canada Review). Transportation charges are then added to obtain the landed price in Southern Ontario.

It is assumed that free trade is a reality so that there is no tariff and that there are no border inspection charges or any other costs associated with crossing the border. Hence the Canadian dollar equivalent price becomes the effective landed price in Central Canada.

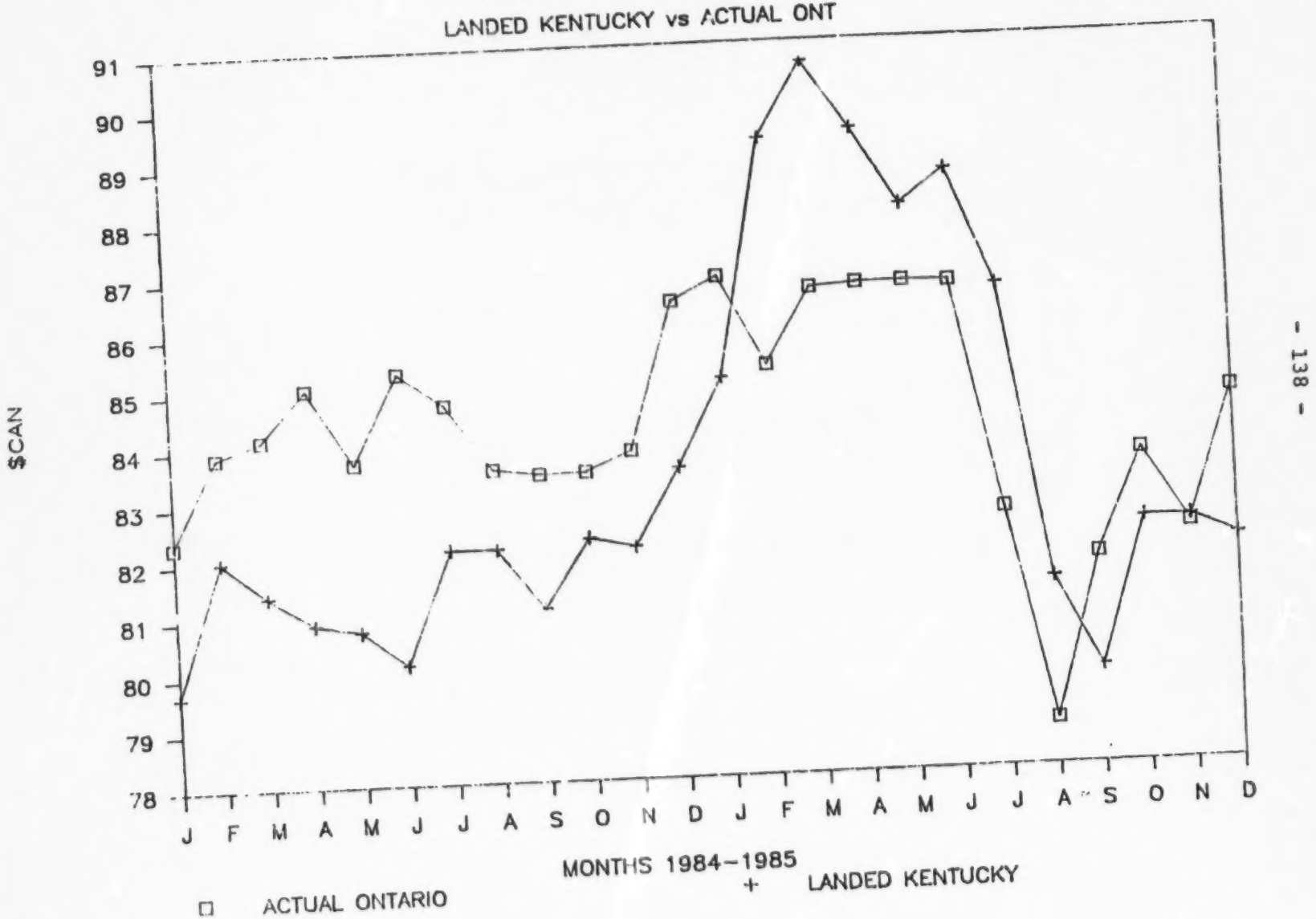
These prices are then compared to the actual prices for Southern Ontario in Table VII (d) 2 and Figure VII (d) 2.

TABLE VII(d)2

PRICES KENTUCKY FEEDER STEERS 600-700 LBS COMPARED TO SOUTHERN ONTARIO

		PRICES cwt KENTUCKY	CAN-US EXCHANGE RATE	PRICES KENTUCKY $CAN	PLUS TRANSPORT	LANDED PRICE ONTARIO	ACTUAL ONTARIO PRICE	PRICE DIFF
1984	J	61.51	1.2483	76.78	2.90	79.68	82.33	2.65
	F	63.41	1.2480	79.14	2.90	82.04	83.89	1.85
	M	61.81	1.2700	78.50	2.90	81.40	84.17	2.77
	A	60.96	1.2794	77.99	2.90	80.89	85.06	4.17
	M	60.15	1.2943	77.85	2.90	80.75	83.71	2.96
	J	59.25	1.3038	77.25	2.90	80.15	85.30	5.15
	J	59.85	1.3240	79.24	2.90	82.14	84.71	2.57
	A	60.79	1.3034	79.23	2.90	82.13	83.54	1.41
	S	59.47	1.3143	78.16	2.90	81.06	83.44	2.38
	O	60.19	1.3188	79.38	2.90	82.28	83.46	1.18
	N	60.17	1.3163	79.20	2.90	82.10	83.81	1.71
	D	61.04	1.3202	80.59	2.90	83.49	86.44	2.95
1985	J	62.06	1.3238	82.16	2.90	85.06	86.86	1.80
	F	63.84	1.3530	86.38	2.90	89.28	85.26	-4.02
	M	63.40	1.3834	87.71	2.90	90.61	86.61	-4.00
	A	63.37	1.3649	86.49	2.90	89.39	86.67	-2.72
	M	61.88	1.3757	85.13	2.90	88.03	86.68	-1.35
	J	62.70	1.3673	85.73	2.90	88.63	86.65	-1.98
	J	61.86	1.3524	83.66	2.90	86.56	82.57	-3.99
	A	57.76	1.3573	78.40	2.90	81.30	78.80	-2.50
	S	56.06	1.3702	76.81	2.90	79.71	81.71	2.00
	O	58.11	1.3665	79.41	2.90	82.31	83.53	1.22
	N	57.68	1.3765	79.40	2.90	82.30	82.19	-0.11
	D	56.67	1.3949	79.05	2.90	81.95	84.59	2.64

FIGURE VII(d)2



In 1984 there was a consistent price advantage for feeders sourced in Kentucky. In 1985 however this advantage was largely absent. Hence it would seem that the likely effects of free movements of feeder cattle are not likely to be significant for Western sourced Canadian feeder cattle. Even if one were to use the 1984 figures where there was a consistent advantage for Kentucky feeders the average price differential was only $3.06/cwt. Even this may be an overstatement as in the heavy fall sourcing months the differential was consistently less than the average.

The effect on Western Canada will now be examined. Assume a $3.00/cwt decrease in the prices Central Canadian buyers are willing to pay for Western Canadian feeders. On an average price of $83.00/cwt (1983-1984) this represents a 4% decrease in price. This is not likely to be significant enough to elicit a major supply response given that the price variance is 2.42 over the 1984-1985 period. Assuming no major decrease in supply the fall in price would represent a decline in revenues for the Western cow-calf industry of approximately 47.5 million dollars annually (based on 1984 production of 2,441,561 x 6.5 cwt/head x $3.00/cwt). Of course in years like 1985 there would be no loss (as U.S. sourced feeders were more expensive) and cattle movements would remain as they are currently.

To determine the effect or cattle flows the alternative markets for Western feeders now need to be examined. For the Western part of Western Canada, primarily Alberta, the nearest U.S. market is in the Pacific Northwest, primarily Washington and Oregon. Table VII (d) 3 presents an analysis of this market for the years 1984-1985. The monthly prices in cwt for feeder steers 600-700 lbs. are presented for

TABLE VII(d)3

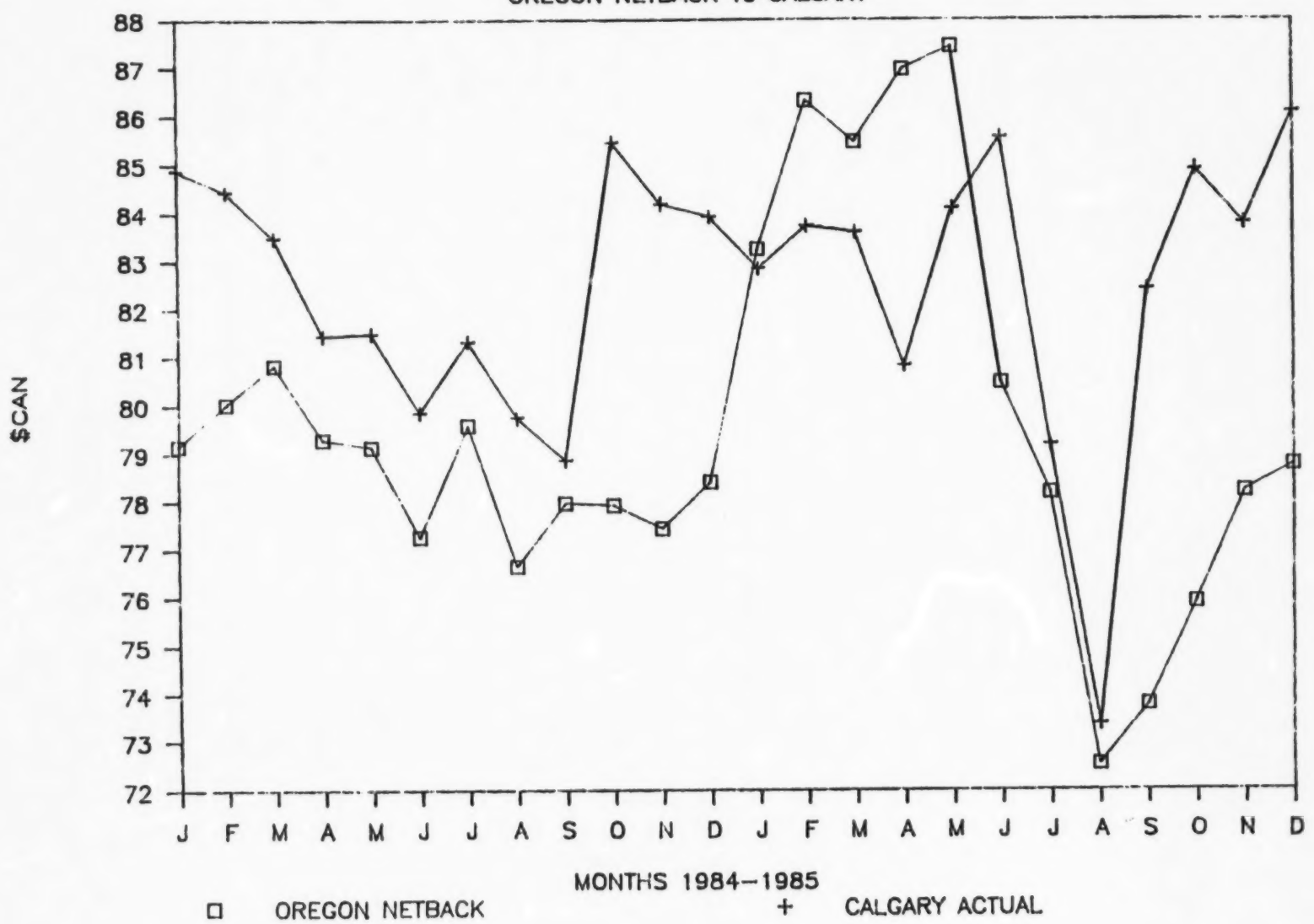
PRICES WASHINGTON OREGON FEEDER STEERS 600-700 LBS
COMPARED TO CALGARY

		PRICES cwt US$	US-CAN EXCHANGE RATE	CANADIAN EQIVALENT	MINUS TRANSPORT	CALGARY NETBACK	ACTUAL CALGARY PRICE	PRICE DIFFERENCE
1984	J	67.42	1.2483	84.16	5.00	79.16	84.89	5.73
	F	68.13	1.2480	85.03	5.00	80.03	84.46	4.43
	M	67.58	1.2700	85.83	5.00	80.83	83.50	2.67
	A	65.88	1.2794	84.29	5.00	79.29	81.46	2.17
	M	65.00	1.2943	84.13	5.00	79.13	81.50	2.37
	J	63.10	1.3038	82.27	5.00	77.27	79.85	2.58
	J	63.88	1.3240	84.58	5.00	79.58	81.33	1.75
	A	62.65	1.3034	81.66	5.00	76.66	79.75	3.09
	S	63.13	1.3143	82.97	5.00	77.97	78.87	0.90
	O	62.88	1.3188	82.93	5.00	77.93	85.47	7.54
	N	62.63	1.3163	82.44	5.00	77.44	84.19	6.75
	D	63.17	1.3202	83.40	5.00	78.40	83.94	5.54
1985	J	66.67	1.3238	88.26	5.00	83.26	82.86	-0.40
	F	67.50	1.3530	91.33	5.00	86.33	83.75	-2.58
	M	65.40	1.3834	90.47	5.00	85.47	83.61	-1.86
	A	67.38	1.3649	91.97	5.00	86.97	80.82	-6.15
	M	67.20	1.3757	92.45	5.00	87.45	84.12	-3.33
	J	62.50	1.3673	85.46	5.00	80.46	85.58	5.12
	J	61.50	1.3524	83.17	5.00	78.17	79.17	1.00
	A	57.13	1.3573	77.54	5.00	72.54	73.38	0.84
	S	57.50	1.3702	78.79	5.00	73.79	82.42	8.63
	O	59.19	1.3665	80.88	5.00	75.88	84.91	9.03
	N	60.44	1.3765	83.20	5.00	78.20	83.79	5.59
	D	60.04	1.3949	83.75	5.00	78.75	86.10	7.35

the Washington-Oregon market. These prices are converted to Canadian dollar equivalents using the average monthly exchange rate (Bank of Canada Monthly Review). From this must be subtracted a transportation charge of approximately $5.00/cwt. This yields the Calgary netback price. In other words this is the price a Canadian cow-calf operator could expect to receive in Canadian dollars if he sold his cattle in the Washington-Oregon market. Again, no tariffs and inspection charges are assumed as a result of a free trade agreement.

These are compared to the actual Calgary price per month, see Figure VII (d) 3. The price differential is calculated in Table VII (d) 3. As can be seen in most months the actual Calgary price is higher than the netback price and export opportunities do not arise. Only in the early part of 1985 were there market opportunities for feeders in the U.S. Of course this corresponds to the last major period of movement of feeder cattle to the Pacific Northwest. The average price disadvantage over the period 1984-1985 was $3.05. This suggests that the Kentucky price advantage ($3.00 in 1984) would have little effect on the movement of feeder cattle. In other words, the price decline would simply be absorbed by cow-calf operators in the Western portion of Western Canada. Alternative markets do not present themselves until the price declines more than the 1984 Kentucky price advantage of $3.00/cwt. Certainly there would likely be more month-to-month Southern movement. The price differential was less than $3.00/cwt in seven additional months in 1984 and 1985. Still there is not likely to be any major shifts in cattle movements until the price decline in Alberta is greater than the Kentucky price advantage of the near past.

FIGURE VII(d)3



Finally the market alternatives for feeder cattle sourced in the Eastern portion of Western Canada near Manitoba and Saskatchewan must be examined. For comparison the nearby Minnesota market is used. This is the closest feeder market (South St. Paul) reported by USDA. Monthly prices for the Minnesota feeder market are presented in Table VII (d) 4 for 1984 and 1985. These are converted to Canadian dollar equivalents using the average monthly exchange rate (Bank of Canada Monthly Review). Transportation charges from Southern Saskatchewan to St. Paul are estimated at $4.20/cwt. Subtracting these gives the netback price to Southern Saskatchewan. In other words this is the price a cow-calf operator in Saskatchewan could expect to receive for his cattle in Canadian dollars if he sold them in the Minnesota market. These are compared to actual prices in Southern Saskatchewan, see Figure VII (d) 4. As can be seen the price disadvantage for selling in the Minnesota market is larger than that for the Pacific Northwest. Hence it does not represent a viable alternative, except occasionally, for cattle sourced from the Eastern portion of Western Canada. Hence the decline in prices due to Central Canadian feedlots sourcing cattle in the Northeastern U.S. would have to be considerably greater than the 1984 Kentucky price advantage before there would be major alterations in the movement of feeder cattle. In only two of the twenty-four months was the price differential less than the price differential for Kentucky in Southern Ontario. Instead most price declines would be absorbed by the Western Canadian industry as it would have to remain competitive in Central Canada.

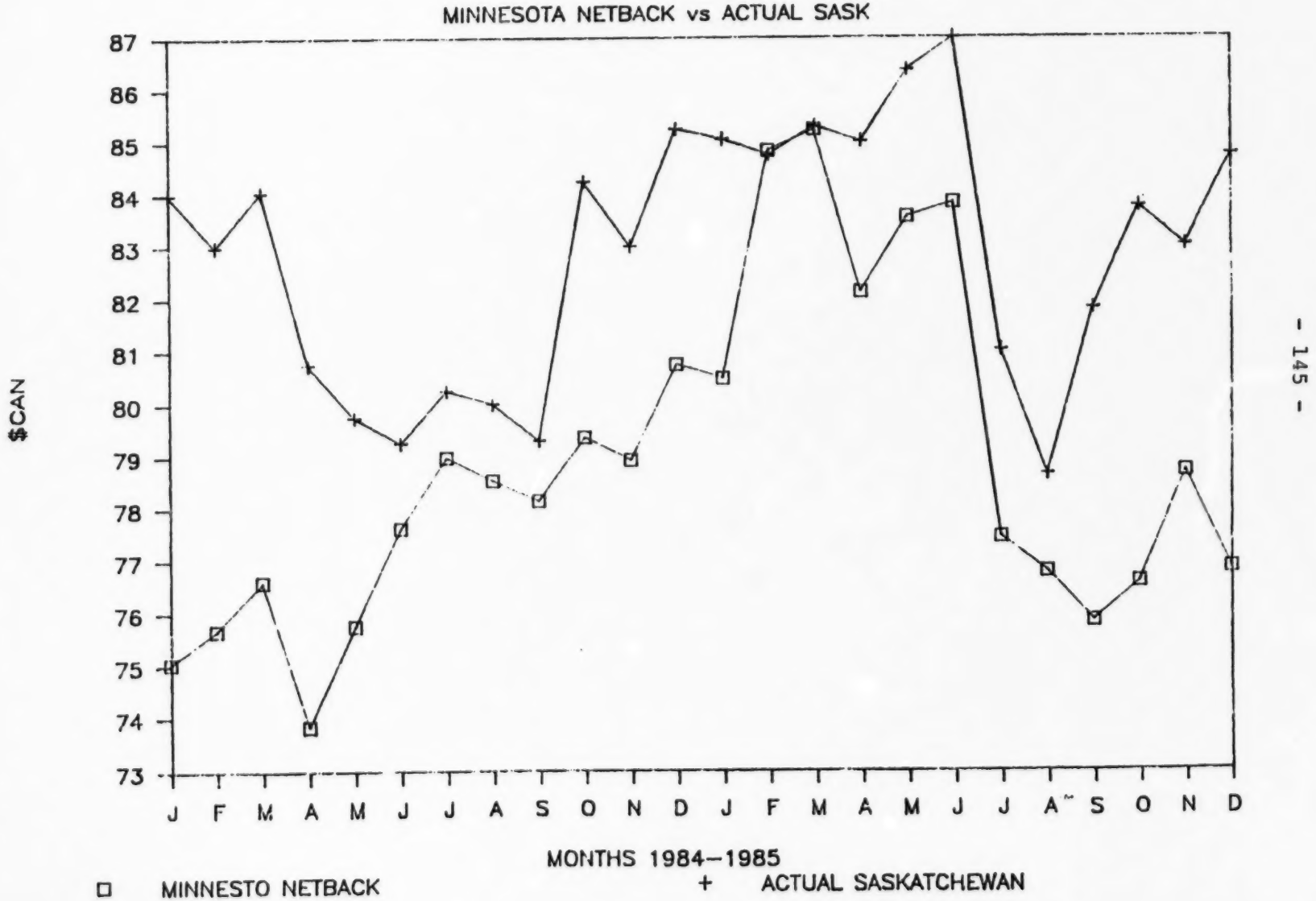
The exact effect of a price decline on the movement of feeder cattle is not clear. The price decline in Western Canada would mean

TABLE VII(d)4

PRICES MINNESOTA FEEDER STEERS 600-700 LBS COMPARED TO SOUTHERN SASKATCEWAN

		PRICES cwt MINNESOTA	CAN-US EXCHANGE RATE	PRICES MINNESOTA $CAN	MINUS TRANSPORT	PRICES MINNESOTA IN SASK	ACTUAL SASK PRICES	PRICE DIFF
1984	J	63.48	1.2483	79.24	4.20	75.04	84.00	-8.96
	F	64.00	1.2480	79.87	4.20	75.67	83.00	-7.33
	M	63.62	1.2700	80.80	4.20	76.60	84.05	-7.45
	A	61.00	1.2794	78.04	4.20	73.84	80.75	-6.91
	M	61.77	1.2943	79.95	4.20	75.75	79.75	-4.00
	J	62.75	1.3038	81.81	4.20	77.61	79.25	-1.64
	J	62.82	1.3240	83.17	4.20	78.97	80.25	-1.28
	A	63.47	1.3034	82.73	4.20	78.53	80.00	-1.47
	S	62.65	1.3143	82.34	4.20	78.14	79.30	-1.16
	O	63.36	1.3188	83.56	4.20	79.36	84.25	-4.89
	N	63.15	1.3163	83.12	4.20	78.92	83.00	-4.08
	D	64.34	1.3202	84.94	4.20	80.74	85.25	-4.51
1985	J	63.96	1.3238	84.67	4.20	80.47	85.05	-4.58
	F	65.80	1.3530	89.03	4.20	84.83	84.75	0.08
	M	64.65	1.3834	89.44	4.20	85.24	85.30	-0.06
	A	63.24	1.3649	86.32	4.20	82.12	85.00	-2.88
	M	63.79	1.3757	87.76	4.20	83.56	86.38	-2.82
	J	64.38	1.3673	88.03	4.20	83.83	87.00	-3.17
	J	60.36	1.3524	81.63	4.20	77.43	81.00	-3.57
	A	59.65	1.3573	80.96	4.20	76.76	78.63	-1.87
	S	58.40	1.3702	80.02	4.20	75.82	81.80	-5.98
	O	59.10	1.3665	80.76	4.20	76.56	83.75	-7.19
	N	60.22	1.3765	82.89	4.20	78.69	83.00	-4.31
	D	58.09	1.3949	81.03	4.20	76.83	84.75	-7.92

FIGURE VII(d)4



that the Western feeding industry would expand. To the extent that this expansion occurred Central Canadian feeder cattle sourced in Western Canada would decline and imports from the U.S. would increase to offset this decline. The cost advantage, even in 1984, of U.S. feeders does not appear to be sufficient to lead to a large expansion of the Central Canadian feeding industry.

Of course all of these effects assume that only the procedures for import are streamlined with no increase in health costs. If the regulations were simply removed and there was a reintroduction of brucellosis, blue-tongue, tuberculosis and anaplasmosis, then there would also be increased costs associated with foregone exports. For a brief discussion of these costs please see Section IV (b).

VIII. Conclusions

Any examination of trade issues suffers from the methodological handicap that it can only be completely assessed within a general equilibrium framework. Unfortunately the complexities of modern economies preclude the generation of any quantitative results from general equilibrium analyses and one is left with the usual but admittedly inadequate partial equilibrium analyses with which to assess trade liberalization.

Bearing these limitations in mind an assessment of the impacts of free trade on the Western Canadian hog and beef industries was undertaken. The major emphasis was directed at non-tariff barriers and U.S. agricultural subsidies although tariffs, domestic institutions and Canadian subsidies were also examined.

The major conclusions are as follows:

1) the major barriers to capturing the expected gains from trade liberalization for the Western Canadian livestock industry are non-tariff in nature. These barriers are both actual and potential. The reasons for this are two-fold. First, the tariffs are very low at present and do not present a significant barrier to trade. Second, given the peculiar nature of the trade in livestock commodities, short term interruptions in trade flows can have significant long term effects on marketing opportunities in the U.S. These relate primarily to worries about security of supply with U.S. customers and an unwillingness to expend resources for the development of market channels in the U.S. by Canadian firms. International trade in livestock and meat is conducted on a small-lot basis and respond to market opportunities which are intermittent. In addition the products are

perishable. Hence small delays in meeting regulations or refusals of individual lots attempting to cross the border are very risky for Canadian suppliers as the costs of refused loads must be borne by such suppliers. These costs or delays are higher than for those engaged in other industries where minor delays for non-perishables are more of an annoyance than a major cost. Lot refusal also creates doubts in the minds of U.S. purchasers of such products regarding the reliability of Canadians as suppliers. This makes the opening of market channels extremely difficult. Further delays in approvals and regulatory changes can lead to foregone opportunities at times when short term market opportunities exist.

Removal of tariffs without some provisions to reduce non-tariff barriers, actual and potential, are not likely to lead to any significant increases in exports in the long run. Two issues need to be pursued at the negotiations. First, some mechanism or arbitration procedure needs to be established to prevent non-tariff measures being arbitrarily applied in the post-agreement period. Second, some mechanism needs to be established to harmonize existing and future health, consumer production (grading, product labeling, etc.) and transportation regulations so that such barriers cannot constitute future barriers to Canadian market access.

2) the United States appears committed to the concept of the "level playing field" for agricultural subsidies and support programs as a condition for free trade. The calculations conducted in this study for the Western trade contact states would seem to indicate that the levels of U.S. subsidies and support policies for beef and pork although less direct than in Canada, are of similar, if not in some cases larger,

magnitudes than those in Canada. Certainly they are, for pork, similar in effect to those programs listed in the 1985 U.S. countervail suit. In addition, in the U.S. itself the so-called "level playing field" does not exist. There are considerable variations in the levels of support from state to state, as there are in Canada from province to province. This arises, in part, from the expenditures of the individual states. It would seem then, for beef and pork that a good case could be made in negotiations for a "from here on" clause regarding support. In other words neither country would have to alter its existing farm support programs however, some mechanism needs to be established to harmonize future support levels, both at the federal level and at the provincial/state level.

3) one of the major stumbling blocks in negotiations may be the issue of those subsidies which are related to market forces. For example the ASA in Canada and the various grain storage policies in the U.S. are activated by price "triggers" related to market conditions. Hence their operation is intermittent. As they are triggered by different price signals they are likely to be in operation in different periods and in addition as the magnitude of their effect is market determined their implications for trade vary from period to period. These programs are likely to have effects on trade flows which may be considered "unfair" at specific times and not others. There seems to be no simple solutions to these problems and they are subjects for negotiation.

4) the status of single seller pork boards in some Western provinces within a free trade context is not clear. This will be especially relevant if the health restrictions on live hog imports are removed or eliminated.

5) the removal of tariffs and some non-tariff barriers would lead to increased exports out of Western Canada. The increase in revenues to the Western livestock industries range from 1% to 8% depending upon the assumptions made regarding the elasticity of supply in Canada and the price responsiveness to imports in the U.S. If other non-tariff barriers could be reduced over time these estimates could be regarded as lower bounds to gains to the industry. These estimates are based on the assumption that there is no change in the import regulations on livecattle.

6) if the Canadian supply elasticity is relatively large then some expansion in the processing industry in Western Canada can be expected, especially in Alberta as much of the import growth can be expected to be on the U.S. West Coast.

7) if, in the process of negotiations, the health regulations on the import of live cattle into Canada were streamlined to the extent that they no longer constituted a significant barrier to trade, then this would lead to, in certain periods, an effect on the Western-based cow-calf industry. Periodically access to stocks of cheaper U.S. feeder cattle and calves for the Eastern Canadian livestock feeding industry would reduce the price of Western feeder animals. The price reduction in recent years would not, however, lead to major alterations in the movement patterns of feeder cattle. If the regulations were abandoned, then considerable additional health related costs would have to be borne by many sectors of the livestock industry. In addition there would be considerable foregone export opportunities as Canada lost its disease-free status.

8) any expansion of processing facilities will require that any treaty have a long non-abrogation clause. Otherwise both Canadian and U.S. firms would, to minimise their risk, have incentives to build their plants on the U.S. side of the border rather than in Canada. In addition, harmonization of grading standards, health inspection standards and labeling regulations would increase the likelihood of plant location in Canada rather than the U.S. Such provisions would maximize the value-added and employment accruing to Canada as a result of trade liberalization.

9) deregulation of Canadian trucking similar to that in the U.S. would aid Western Canadian firms in accessing new markets. Problems and costs associated with the backhaul of commodities would be reduced and a more efficient transportation system would evolve. This is especially critical if market expansion can be expected as a result of trade liberalization.

There do appear to be considerable opportunities available for market development in the U.S. for the Western Canadian livestock industry as a result of trade liberalization with the U.S. Full realization of these opportunities will require that those who negotiate for Canada be fully aware of the special conditions and requirements of the industry. These should be pressed most forecefully at the negotiations.

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